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ERRATA.

- Page 28, line 2 from bottom, for "*anthina*," read "*janthina*."
- " 61, " 11 from top, for "*Pentophora*," read *Penthophora*."
- " 84, " 12 from bottom, after "winter," insert "and spring."
- " 86, " 9 from top, after "numerous," insert "in February and May."
- " 220, " 22 from top, for "♂" read "♀."
- " 231, lines 5 and 6 from top, for "''", read "mm."
- " 231, line 5 from bottom, for "*ventricosa*," read "*ventruosa*."
- " 235, " 13 from top, for "Marsh," read "March."

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[VOLUME XXXI.]

NOTES ON THE *LEPIDOPTERA* OBSERVED DURING A SHORT
BOTANICAL TOUR
IN WEST SUTHERLAND, THE ORKNEYS, AND SHETLANDS.

BY FREDERICK J. HANBURY, F.L.S., F.E.S.

Leaving London on the evening of July 10th, my son and I reached Invershin in East Sutherland about 2 p.m. the following day. The few hamlets and comfortable little inn which constitute the village are picturesquely situated on the Kyle of Sutherland, a fine expanse of brackish water extending many miles inland to the westward, from both sides of which arise moderately high hills, clothed below with oak and birch, and higher up with extensive native birch woods only. The object of our journey being the collection of certain *Hieracia* for figuring, we were unable to stay for any entomological work at this promising and attractive looking centre, but drove directly after lunch to the inn at Oykel Bridge, a distance of about eighteen miles on our way to Inchnadamph. The morning had been very wet, but we were favoured with a bright afternoon, and noted during the early part of our drive many bright and freshly emerged specimens of *Pieris brassicae* and *Vanessa urticae*, but being anxious to secure a night's collecting at Oykel Bridge, we made no attempt to catch either, although, as is well known, the Sutherlandshire forms of both species are very marked, the specimens of the latter being often large, and deep in colour. After passing Rosehall at the head of the Kyle, and leaving all traces of civilization behind, excepting the fairly good road which crosses the county, we began to ascend into the dreary moorland mountain wastes that occupy thousands of square miles in the inland portions of the north of Scotland. Such a region would afford an instructive *rendezvous* for a demonstration by some of our would-be land reformers against the ownership by one man of a large tract of

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country which is not kept in a high state of cultivation, though it would appear to be of little value for any other purpose—not even to botanists or entomologists, except in a few secluded hollows, or the rocky ravine of an occasional burn. The lonely wayside inn at Oykel Bridge was reached about 6 p.m., and I can heartily commend it as an excellent spot from which to work at the entomology of central Sutherland. Like most of the inns of the extreme north, it is clean, comfortable, unpretentious, and moderate in its charges, whilst its owner is not only hospitable and obliging, but well equipped with vehicles for driving to, and boats for fishing on, the neighbouring moorland lochs, so that an entomologist experiencing a little Sutherlandshire “weather,” is not altogether without resource. It is situated at the bottom of the valley, close to the river Oykel, which flows through a rocky channel, widening soon after passing the bridge into a still loch. Fairly high hills surround the inn on all sides, the brae to the north rises steeply from the river, and is clothed with an extensive scattered birch wood. Here we decided to sugar, and to try what we could net before dusk. A slight rain early in the evening made the long grass and heather very wet, but it soon ceased, the sky remaining overcast, and the wind blowing from the west.

The trees selected for sugaring formed a round of about half a mile, over which we netted the following species before it got dark enough to light the lantern, viz.: *Agrotis strigula* (*porphyrea*), *Acidalia fumata*, *Larentia viridaria* (*pectinitaria*), *Eupithecia nanata*, *Melanthia ocellata*, *Scoparia ambigua*, *Leioptilus tephrodactylus*, *Pleurota bicostella*, and *Argyresthia Gædartaella*, none of which appear to call for any special remark. About ten o'clock we commenced looking at the sugar, although owing to its being still daylight, the insects were very skittish, and we lost some. *Cymatophora duplaris* was present in large numbers, the worn condition of many of which showed that it must have been out for some time. Others were in fine condition, all rather large and dark grey, except the paler band beyond the middle, and sometimes a pale grey base. *Xylophasia rurea*, *X. monoglypha* (*polyodon*) (referred to later), a dark form of *Apamea gemina*, closely resembling *Mamestra furva*, *Caradrina quadripunctata* (*cubicularis*), much mottled with dark grey, and approaching more than usual in appearance to *C. morpheus*, yet richer and more prettily spotted, *Noctua plecta*, *N. brunnea*, and *N. festiva*, mostly of more sombre tints than the southern types, *Mania typica* and *Euplexia lucipara* calling for no comment. *Aplecta tinctoria* was abundant, and in fine condition, the specimens being richly coloured throughout, and the

central band very handsome, almost purplish, and enclosing an extremely pale and sharply squared orbicular stigma. *Hadena adusta*, *H. oleracea*, a beautiful grey form of *H. pisi*, and *H. contigua*, duller in colour and rather smaller than specimens collected a month earlier in the south of England, complete the list of *Noctuae* taken at sugar on our first evening.

The following day was hopelessly wet from early morning to late evening, affording an opportunity of doing justice to our captures of the previous night. Again another wet morning, which cleared a little towards mid-day, when we proceeded on our journey to Inchnadamph. The long drive was marred through the mountain tops being enveloped in cloud, the only incident of interest being an attack made by a Peregrine falcon on a young curlew in mid-air. The two fell struggling to the ground, but before we were able to run to the spot where they fell, the neck of the curlew was ripped completely open, and we were obliged to kill it at once. The falcon had, of course, flown off before our approach. The hotel at Inchnadamph was filled, as usual, with anglers, but we were fortunate in securing the only two beds that were to be vacant that night, as rain was again commencing, and the next hotel at Lochinver was fourteen miles further on. Despite the weather, we took a long walk in the afternoon up the Traligill Burn towards Ben More of Assynt, in search of the object of our visit to these parts—*Hieracium hyparcticum*, Almq., which, though abundant in South Greenland, is confined in Britain, so far as is at present known, to this one remote locality, appearing again in Sweden, and thus forming a connecting link between the floras of the two continents. The pitiless downpour made botany difficult, entomology impossible, and the only animals that seemed really happy under such dismal surroundings were the numerous dippers on the rocks in the bed of the stream. It rained all night and the next morning, everything was enveloped in mist. The ascent of any of the mountains was out of the question, so making our way to the river bed, we searched in the shingle, which contains much limestone *débris*, for the very rare *Arenaria norvegica*, Gunn., which was discovered here a few years before, and whose only other British habitat is in Unst, the northernmost island of Shetland. Owing probably to the amount of water in the river we found it very sparingly, and the little strand on which it occurred most abundantly four years ago seemed to have disappeared altogether. When the mist lifted, the rain almost ceased for an hour or so, and we climbed to the base of the massive limestone cliffs above the hotel, which form so marked a feature in the

scenery of Inchnadamph. Numerous specimens of *Larentia cæsiata*, fairly darkly banded forms of *Camptogramma bilineata*, and an occasional *Cidaria truncata (russata)* flew up as we passed along the base of the rocks. At the angle immediately over the hotel, where the cliffs curve away to the north, the turf on the ledges was almost entirely composed of the very rare *Carex rupestris*, All. Heavy rain again fell and prevented any further collecting.

The following day the clouds were higher, and, skirting Loch Assynt by the Lochinver road until we reached the ruined castle, we turned towards the mountains, ascending the right hand bank of the Calda burn. A gleam of sunshine brought out a number of *Lycæna Icarus*, nearly all the under-sides of which were very pale, and with relatively small spots; a form which, so far as my limited experience goes, is abundant in N.W. Ireland, as well as in N.W. Scotland, and differs considerably from the usual southern type. A specimen that I collected near the same locality four years previously is beautifully streaked with bluish-black at the base of the hind-wings, and the usual spots very indistinct, almost obsolete. The same year, but a few miles nearer Lochinver, I found *Cænonympha Typhon* and *Argynnis Aglaia* in great abundance; the females of the latter being very large and so richly coloured as to bear to this species almost the same relation that the var. *valezina* does to *A. Paphia*. Beyond a few *L. cæsiata*, and a solitary specimen of *Eupithecia nanata* that we kicked up in the wet heather, we found no more insects during our long climb into the mountains, cloud and occasional showers preventing anything flying.

The waterfalls in the higher parts of this wild and little known burn are of singular beauty. The atmosphere being very clear we had a fine view of the Outer Hebrides in the distance. Our descent was by another fine burn, rejoicing in the name of the Allt Poll na Droighinn, where the only incident of interest was our suddenly surprising a brood of young kestrels that could only just fly. Whilst the young birds fluttered away short distances, the parents feigned being wounded, and tumbled about in the heather some thirty yards from us, uttering piercing shrieks, and doing all in their power to draw our attention from their offspring. Just before reaching the hotel, and close to the junction of the aforesaid and Traligill Burns, we came to a luxuriant meadow, in which were hundreds of *Emmelesia albulata* flying lazily for short distances whenever we were favoured with a brief gleam of sunshine. A few were fairly strongly marked, but we found none at all approaching the extreme Shetland forms. At

night, though still showery, we determined to sugar the scattered birches on the rising ground behind the hotel, and although no great rarity was found, we were well content with the result of our evening's work.

Xylophasia rurea, var. *alopecurus*, *X. monoglypha* (*polyodon*), in large numbers, *Noctua augur*, *Apamea gemina*, *Hadena adusta*, *H. contigua*, and *Caradrina quadripunctata* (*cubicularis*), of the same richly mottled form as previously alluded to, were the only species taken, but the beauty and variety of the forms of *X. monoglypha* both here and at Oykel Bridge, fully atoned for any lack of rarities. They vary from pale brown to shining black, though the former are not altogether like those from the south, but of a more regular and peculiar dull brown, with the darker markings altogether absent. Others are of a darker brown, devoid of the usual pale and white markings, in fact, nearly unicolorous. Of the blacker forms some have the central band black, and of these two are of extreme beauty, one having a narrow black band, large pale stigmata, pale lines, and a general clouding of rich olive-brown over the rest of the fore-wings; the other black from the base to the second line, then clouded with rich warm brown and black.

Drizzling rain and a nasty slip over a wet rock compelled an earlier return than we had contemplated. The following morning we found, to our disgust, to be again as wet as ever, so we determined to spend our time in travelling, collecting being impossible. Taking the slow open mail cart that starts from Lochinver, we passed most of the day in driving thirty-five miles to Lairg, heavy rain falling nearly all the way. Having missed the mail train north we were only able to proceed as far as Helmsdale that night. The next morning was sunny, and we noted by the river-side *Pieris brassicæ* and *Vanessa urticæ*. Leaving by the early train we reached Thurso about 2 p.m., and having four hours to spare before the departure of the Orkney boat, walked along the cliffs to the north of Scrabster, where we soon came on a fine colony of the beautiful reddish-purple *Primula scotica*, Hook., a plant confined to the coasts of Caithness and Sutherland, and to one or two localities in the Orkneys. It was again quite too wet for entomology. The mails from the south being more than an hour late it was 10 p.m. before we landed at Scapa Pier, and drove to Kirkwall. A visit to the ruins of the Bishop's Palace and the adjacent Earl's Palace, then to the fine old Norman Cathedral, St. Magnus, whose beautiful interior is sadly marred by the hideous modern fittings of the chancel, occupied our morning. A stroll along the coast of

Scapa Bay in the afternoon yielded the few following insects: *Lycæna Icarus*, of which the only two males that I took have the under-sides much darker than usual, one of them in fact quite brown and closely resembling an ordinary female, the central spot is large, and ringed with white, and the usual spot nearer the base very indistinct. I did not note the fact till I left so am unable to say whether most of the Orkney specimens exhibit the same peculiarity. In a fine bed of *Elymus arenarius*, Linn., my son took a single specimen of *Charæa graminis* at rest, and in the long grass of the low cliffs we found *Larentia didymata*, *L. cæsiata*, *Coremia munitata*, pretty forms of *Camptogramma bilineata*, also *Scopula lutealis* and *Crambus pratellus*.

The next morning our boat for Lerwick started at the uncomfortable hour of 3 a.m., and after a somewhat rough passage, especially off the Fair Island, we reached our destination at 1.30 p.m. The afternoon was occupied in inspecting the quaint, narrow, pathless streets, which are paved with rough stones, in visiting friends, and an early *table d'hôte* dinner. The evening was clear and cold, and strolling down to Loch Clickhimin to see the well-known ruins of the fine Pictish tower, which stand at its southern end, we observed a great number of terns flying over the water. A small boy near volunteered the information that they were nesting in large numbers on an islet in the loch. To this spot he then rowed us, the general commotion and screams of the terns becoming more and more intense as the boat approached. The sight on landing on this stony weed-grown island was most interesting. The nests were everywhere, and their contents in all stages of development, from the new-laid egg to the full-fledged young bird. Care had to be exercised to avoid treading unintentionally into the nests. We returned at dusk, about 10.30 p.m., without having observed a single Lepidopteron.

The boat arrangements to the Northern Islands precluded one staying longer in Lerwick, and at 9.30 the following morning we started on the final stage of our journey. The dismal rainy weather experienced in the north of Scotland and the Orkneys, now gave way to ceaseless sunshine, and, for the most part, cold, clear nights, till the end of our visit. A more enjoyable trip on the water could scarcely be imagined than that from Lerwick to Balta Sound on a fine summer's day. The grand coast scenery on the one side, and boundless ocean on the other, the frequent change of direction as island after island is visited, and passengers and cargo discharged or taken on board in the successive voes entered, the cheerful Norsemen with their long flaxen hair bringing their barge-like boats alongside,

the porpoises in the water, and countless wild fowl sitting on the treacherous-looking rocks or circling in the air, all contributed to the charm of a scene not easily to be forgotten. Having taken nine hours to accomplish a journey that, but for the various diversions, covers a distance of only forty-five miles, we steamed into Balta Sound, Unst, about 6.30 p.m.

Determined not to lose even one fine evening, we hastened to the cottage where rooms had been reserved for us, dined, and were on our way soon after eight o'clock to the somewhat distant collecting ground, courteously described by Mr. Salvage as the most productive. A walk of two and a half miles, and a boat for another three, brought us near the desired goal. Although fortified with the best of spirits—I mean the highest expectations—and a most seductive mixture of sugar, the fates were against us, and the weather as hopelessly fine as it had been wet in Sutherlandshire. Clear and cold, with a heavy dew, and so light that you could read a newspaper at any time, the mile or more of palings that we sugared at an elevation of from 300—400 feet yielded very little. The time of year was right, also the locality, as was indicated by the ground being grey with the reindeer moss, in which *Orymodes exulis* is said to tunnel and hibernate in the winter, yet all we took was one fine specimen of *Mamestra furva*, one or two *Agrotis strigula* (*porphyrea*), a worn *Noctua conflua*, whilst a few dark forms of *Larentia cæsiata* were netted as they flew to our light. Despite the grumblings of the youth (unaccustomed to such late hours) who rowed us, we persevered with praiseworthy pertinacity till the rapidly increasing light warned us that any further effort was useless. We returned to our boat somewhat crestfallen, but glad to rest and to recover our great coats, for it was bitterly cold. The scene was very romantic. To the north, Saxaford and other hills stood out in hard black outline against the sky, already red and golden with the approaching dawn. The waning moon and a few bright stars relieved the deep blue to the south. All was perfect stillness, broken only by the splashing of our oars, until we suddenly disturbed a colony of Herring and other gulls asleep on the water which soon rent the air with their cries as they circled wildly above us.

When quitting the boat (it was 2 a.m. on Saturday, July 21st), we informed the youth that his services might be again required at night, but having had enough "fly catching" for the moment, he came to the conclusion that it would be "too near the Sabbath." Reaching our cottage about sunrise, thoroughly tired, it was 1 p.m. before we were again prepared for another start. Whilst going to the Post

Office I saw a fine specimen of *Vanessa Atalanta* at rest on a coal heap, but unfortunately had no net with me; an hour or two later my son saw another, at least a mile from the first locality, and a third was seen two or three days after. I have not the means at hand of ascertaining whether this is a fresh record for Shetland, though I see in an old volume of the "Entomologist" a statement that no butterflies are found there. Having secured an experienced boatman, we started heavily laden with the necessary paraphernalia for botanizing and again sugaring at night, and the provisions required for at least two meals. What my son designated "bun-tongue sandwiches" formed the staple of our picnic repasts, and entomologists visiting Unst will do well to purchase a few provisions before leaving Lerwick.

The collection of three species of *Hieracium*, well known in Scandinavia, though confined in Britain to the Shetlands, was the object of our expedition. Our destination was the Loch-a-cliff, a narrow lake running north and south about three and a half miles long, with moderate hills rising steeply from both sides. Coasting along the east bank the first species found was a form of *Hieracium dovreense*, Fr., but very sparingly, and neither bank yielded any more until we reached some miniature rocky cliffs on the west side of the head of the loch. Here we found the last-named species in abundance, associated with *Hieracium protractum*, Lindeb., a plant readily distinguished from the above by its long narrow leaves, which are beautifully blotched with reddish-purple. The Loch-a-cliff is separated from Burrafirth, an arm of the sea, by a sandy track about half a mile across, containing several plants of local interest, through which a burn flows into the sea. In the damp rushy hollows of this low-lying tract is found the deep purplish-brown Shetland form of *Coremia munitata*, while on the cliffs of Burrafirth we netted some very dark *Larentia didymata*. Near the same spot we secured *Hieracium pulchellum*, Lindeb., the third species of which we were in search. It grows sparingly in the grass of the sandy cliffs, and so far has been found in no other locality in Shetland. Our main object being thus accomplished, the afternoon was spent in a boat on Burrafirth, the fine weather enabling us to row to the splendid caves and tunnels under the gigantic cliffs of Saxaford, though the heavy swell from the open sea rendered it unsafe to enter them, and when we heard wave after wave thundering away into the darkness we felt little desire to follow, nor did we attempt to land at the Muckle Flugga lighthouse. The fury with which the waves beat over this isolated and northernmost islet may be imagined from the fact that, notwithstanding the

rock being 50 ft. above the water, the light 150 ft. above the rock, and the kitchen chimney 20 ft. higher than the light, during a storm last winter the surf poured down the kitchen chimney in such quantity as to put the fire out and flood the room.

But the number and variety of birds that inhabit the cliffs, caves, rocks, and water of Burrafirth are, perhaps, the most delightful feature of the place. They are there in countless thousands, and the wild confusion and babel of sounds as our boat approached nearer and nearer to the ledges lined with the young, defy description. Tier after tier was crammed with them, higher than our eyes could distinguish the separate birds. Not being an ornithologist, I could not attempt a complete list of the species seen, but amongst those we could identify were the common, herring, and great black-backed gulls, an enormous colony of kittiwakes at the base of one cliff, which at a distance looked like a swarm of gnats, puffins, razor-bills, cormorants, oyster-catchers, common and black guillimots, common, lesser, arctic, and, I think, sooty terns, and a large diver,—whilst soaring hundreds of feet above us on the Saxaford side were a pair of ravens; and one great skua or Bonxie, which still breeds on the west side of the Firth, flew over our boat. But evening was drawing on, and clouds gathering from the north-west, and our thoughts turned hopefully to the prospect of a better night for entomology.

Returning to the scene of the previous night's failure, we again sugared about a mile and half of posts (too long a round to work properly), and at about 10.45 it was dark enough to commence looking for results. We were not disappointed: *Noctua festiva*, var. *conflua*, was abundant and in fine condition, two *Mamestra furva* were soon taken, one or two brightly marked specimens of *Charæas graminis*, a single *Triphæna pronuba*, then, with the exception of plenty of *conflua*, there was a long interval, although *Larentia cæsiata* constantly flew to light, and a fine and very varied series was thus secured. About 1 a.m., just as it was getting lighter, we had the great pleasure of taking a single specimen of *Crymodes exulis* in fine condition, soon after which we returned on our homeward journey, hoping for great things the following week. Although we made this fatiguing expedition twice more, not reaching home until the sun was shining brightly in at our blindless windows, no fresh species was taken, nor any more *C. exulis*, although *N. conflua* continued plentiful.

We had a night's sugaring on the palings round a rough field at Balta Sound, but, with the exception of one or two *C. graminis*, took nothing. Night after night was clear and cold, with a keen N.E. wind.

Happily our botanical collectings were far more successful. Visiting the well-known habitat among rough broken limestone *débris* near the road from Balta Sound to Haroldswick, we came across the two great, I should rather say small, Shetland rarities, *Cerastium arcticum*, Lange, var. *Edmondstonii*, Beeby, and *Arenaria norvegica*, Gunn., associated with *Arabis petræa*, Lam., all in good quantity, whilst among the rocks on the east end of the Muckle Heog Cairns were small plants of *Asplenium viride*, Huds., *A. adiantum-nigrum*, Linn., *Lastræa filix-mas*, Presl., and *Polypodium vulgare*, Linn., and, close to the summit, *Botrychium lunaria*, Sw., ferns as a rule being very rare in Shetland. Flying round the cairn on the summit were two or three *Vanessa cardui*, one of which I captured. It will serve as a voucher for the locality, though it had seen better days.

Descending the S.W. slope of the hill we came to another locality for both the *Cerastium* and *Arenaria*, about two-thirds of a mile from the original station, and on a subsequent day, whilst driving to Uyea Sound, on the S. side of the island, I found a third habitat for both these plants, at least three miles distant from the others, on the E. side of the road.

One day was given up to exploring the Hill of Haroldswick, and although no *Lepidoptera* were taken nor specially rare plants met with, the magnificent distant views, grand cliff scenery, and the profusion and variety of the birds amply rewarded us. To the S., about forty-five miles distant, rose the precipitous face of "The Noss," and away to the W.S.W., the remarkable outline of Foula, with its steep escarpments, was just discernible on the horizon, whilst to the E., about two miles from land, was a school of whales spouting and occasionally disporting themselves so as to exhibit a portion of their backs. They had been accompanying the herring boats for several days, and lack of time alone prevented our going out with the fleet for a night's fishing to see them at closer quarters.

On our return to Haroldswick, whilst waiting for our trap, we set to work to gather the heads of *Silene maritima*, With., and soon had enough to fill a small sack, the plant being very abundant among stones on the beach. We did not stop to examine whether they contained larvæ, but only gathered as fast as we could, with the result that I now have eleven healthy pupæ of *Dianthæcia nana* (*conspersa*), and probably a good supply of *Eupithecia venosata*.

The same calm brilliant weather in which we had arrived accompanied our homeward journey. A day's excursion to Scalloway produced no *Lepidoptera*, nor did a subsequent walk across the island

of Bressay to the marvellous cliffs, caves, and arches of the "Noup of Noss." The bird-life here was quite as extraordinary as that of the cliffs of Burrafirth, the difference to us being that we now saw it from above instead of from below. A number of the rare Richardson's skua were met with as we ascended the boggy, heathery hillside which suddenly and abruptly terminates in the precipitous Noss, a cliff 592 feet high. From this point we could just see Saxaford to the north, Foula to the west, and the Fair Island to the south, and a magnificent scene it was that should on no account be missed by any entomologist visiting the Shetlands.

An excursion on our return through the Orkneys was chiefly interesting from antiquarian and botanical points of view. The well-known Celtic Stones of Stenness, and the green sepulchral mound known as "Maeshowe," with its square massive chamber inscribed with Runes, were visited on the way to Stromness, whence a somewhat exciting row in a small boat through the powerful currents of Hoy and Burra Sounds brought us to the Island of Hoy, by far the wildest and grandest island of the group. The object of our visit here was the collection of a hawkweed discovered in 1886 by the Rev. W. R. Linton on the precipices of the Hamars, and recently described by him under the name *Hieracium orcadense*. An adequate supply was secured, as it occurred in quantity, and in good condition, but we were fairly driven from its haunts in the rocky gullies of the cliffs by the innumerable and venomous midges which attacked us.

Nothing noteworthy occurred after this on our homeward journey, but before closing these remarks I must briefly revert to the entomology of Unst. We were quite too late for *Hepialus humuli*, var. *shetlandica*, and just too early for *Cidaria immanata*, for we carefully searched the sheltered heathery banks where this is known to occur in fair abundance, but could not secure a single specimen. *Melanippe montanata*, var. *shetlandica*, was far from plentiful, and in worn condition, but we managed to secure eggs, from which I hope to succeed in rearing a few specimens. The only *Micro-Lepidoptera* netted during our day walks were *Pamplusia mercuriana* (*monticolana*) and *Aphelia osseana* (*pratana*). One *Plusia gamma* was taken in our cottage garden. The solitary specimen of *Orymodes exulis* is a little smaller and darker than any of my other Shetland specimens, and tends somewhat towards the Perthshire type, having a broad central band of rich brown, a sharp yellow stigma outside it, and some pale mottling towards the hind margin. The forms of *Larentia cassiata* varied from the usual grey, but with a darker central band, to nearly black. One

beautiful grey specimen is remarkable for having an unbroken stripe of clear pale grey quite across the fore-wings, occupying the central area of the band. The series secured of *Noctua festiva* and its variety (?) *confusa* may certainly be regarded as our chief success. It includes genuine ordinary *festiva*, perhaps a little small and subdued in its colouring, but with the usual broad wings; others are of the form known on the continent as *confusa*, that is, with still smaller red-brown fore-wings, hardly pointed, generally indeed blunt, but very neat looking, and not particularly long or narrow winged. These lead to the special Shetland forms as brought home by the professional collectors: narrow-winged, and with the apex produced to a point. Of these a few are most peculiar, having the costal and dorsal margins straight and very nearly parallel, thus the base of the fore-wings is nearly as broad as the hinder portion, and the anal angle is so far advanced as to totally change the direction of the hind margin, and of these several have the fore-wings exceedingly narrow in proportion to their length. All these shapes run into each other, and scarcely any two specimens are alike. Besides diversity in form, the series exhibits variation in colour from grey-brown to deep red and dark purple-brown; in some the stigmata are ringed or sharply pale in a dark ground, in others unicolorous and almost hidden. One has the central black square spot and the dark submarginal band unusually conspicuous, and is in shape almost a typical *festiva*, the uniformly dark specimens without markings being in most cases narrow and sharp winged. The specimens we took on the west Sutherland hills are of a far richer, almost brick red.

This brings me to the conclusion of a paper that would never have been written had it not been undertaken at the request of my friend Mr. Barrett, when he came to see my captures, to whom also I owe suggestions as to the points he considered of sufficient interest for publication. My list of species is necessarily meagre compared with those of others who have been able to spend a whole summer among these northern islands: our time was short, the weather as a whole unfavourable for entomology, and the principal object of our trip botany. I trust, nevertheless, that this somewhat discursive narrative may serve to interest and stimulate others to more important researches in these happy hunting grounds.

Among a fine set of Shetland *Lepidoptera* received from Mr. Thomas Salvage last year was one specimen of *Apamea leucostigma* (*fibrosa*). I am not sure whether this has hitherto been reported from Shetland.

69, The Common, Upper Clapton :
December, 1894.

IN AN OLD ORANGE GARDEN.

BY JANE FRASER.

In the midst of a stretch of beautiful "Bush" country in New South Wales is an old orange garden, and as the kindly owner invited me to wander through it at will, I usually took it on the way to the Bush about eight o'clock in the morning; by that time the sun shone full upon it, and in a sheltered spot where some beds of old fashioned flowers had been planted out, such as sweet williams, stocks, phloxes, petunias, &c., there were two large *Hibiscus* trees, and to the scarlet blossom of these came great numbers of butterflies, notably the grand *Papilio Erectheus*. Often in the morning this butterfly, freshly emerged, might be seen hanging from a twig or leaf of an orange tree, usually on the shaded side, but as soon as the wings were expanded it seemed invariably to get into the sunshine, and would there hang motionless with outstretched wings, sometimes for nearly an hour, and then sail off with flapping flight, pausing to suck at the blossoms of the passion vines or cosmias, and pretty surely finding their way to the scarlet *Hibiscus*. There they would rest for a few moments with quivering wings, or with the wings closed, the white and red markings of the under-side looking like some delicate flower, or they loved to bask in the sunshine with wings fully opened, forming a glorious contrast of colour among the vivid blossoms—the male with his velvety-black and creamy-white, and the female with her immense expanse of white; red and black. The latter, when hanging from the *Hibiscus*, could easily be seen from a considerable distance, and looking, blossom and butterfly together, like one huge tropical flower. When fresh from the chrysalis the dentate outer edge of the hind-wing has a fringe of a most delicate shade of yellow, which adds greatly to the beauty of the insect, but this fades after a time.

The larva of *P. Erectheus* (nearly $2\frac{1}{2}$ inches long) when full grown was, in some seasons, found in great numbers feeding on the orange trees, but the owner of the garden assured me that, notwithstanding their numbers and great size, he did not think they did any damage to the trees, and that certainly they did not affect the fruit crops, which were excellent, both in quantity and quality. Although the sunny orange gardens are the undoubted head-quarters of *P. Erectheus*, it is one of the butterflies that is met with in quite unexpected localities, and in the most dense, sombre Bush, miles away from orange gardens, it gladdens the heart to see the mflapping lazily along.

The great stretch of Bush around and beyond the old garden was mostly rugged, hilly country, with vast numbers of the characteristic *Eucalyptus* trees, and in the little dingles and small valleys were clear running streams, or as the colonists term them, creeks, and bordering these was a dense growth of different species of wattle and many kinds of flowering shrubs, and near an old deserted farmhouse one or two camphor laurels. Around those camphor trees, with their rich green foliage and sweet scented blossoms, the brilliant *Papilio Sarpedon* flew in numbers, their peacock-blue wings flashing in the sunshine. The flight of this butterfly is remarkably swift, and although the camphor blossoms were their great attraction, they were frequently seen rushing across country at a great speed. In the beautiful Botanical Gardens of Sydney *P. Sarpedon* is in some seasons so abundant as to quite form a feature, and even in the most crowded streets of that charming city I have seen them skimming along over the heads of the people. A great contrast to *Sarpedon* was *Papilio Macleayanus*, which used to flit gently about the garden, preferring the more shady places. Its prevailing tint is a pale delicate green, suggestive of moonlight, the tails of the hind-wings are long and slender, and altogether it had a rather fairylike appearance as it flitted across sunshine and shadow. The caterpillar feeds on the orange, but I have found it on the citron and mock orange, and at least once on the camphor laurel. The Australian Emperor (*Charaxes Sempronius*) is another camphor-tree insect, but it also feeds on some of the wattles. A truly grand creature he is with his bold markings of cream colour and black and with double swallow tails, and particularly noticeable from the wonderful rapidity of flight. I seldom saw them rest for more than a few moments, but they would glide swiftly up and down between the long rows of orange trees, then suddenly rise and flash out of sight over the tops of the forest trees.

Another butterfly that occasionally frequented that part of the garden where the flower beds lay was *Ialmenus Evagoras*, a lovely blue with highly developed tails on hind-wings. On sunny mornings it looked very charming among the sweet williams and xenias, but was alert and difficult to capture; however, about 5 p.m. it had a habit of settling on the warm sun-dried earth, and was then more easily taken. I was told a curious fact regarding the larvæ of this species, that they are frequently attended by ants for the sake of a sweetish substance which they emit.

As might be expected such a peaceful haunt for butterflies was largely patronized by *Danaïs Plexippus*, which seems to have a fine

eye for the picturesque and suitable, and often, after walking for miles through Bush without having the eye gladdened by sight of bird or insect, I have come suddenly upon some sunny sheltered slope, where amongst a perfect forest of ferns and creepers the cotton weed reared its clusters of graceful white blossoms, and *Plexippus* sailed to and fro as if the whole place belonged to him. One morning when taking my early stroll in the old garden, I noticed one of this species of a remarkably pale colour, the markings were of the usual type, but the rich orange-tawny was replaced by pale greenish-yellow. It had quite recently emerged when I first observed it, the wings hanging down limp, and not having with me a box large enough to take it home alive, and knowing from experience that it was almost certain to haunt the spot for some time, I refrained from capturing it until the wings should be perfectly expanded. Meantime I watched it with intense interest, as being the first of the species I had ever seen which differed to any notable degree from the usual type. A few of the ordinary form were flying about, and frequently alighting on the sweet williams, where the pale greenish-yellow one sat sunning himself with outstretched wings. The contrast was most striking, and but for the well-known markings it might almost have passed for another species. When it took flight and flew from one flower bed to another, it was equally remarkable on the wing, the pale greenish tint telling strongly. After watching it for a considerable time, I netted and killed it, and gazed on my prize with much pleasure. The markings of the under-side, except in being a little paler, did not differ from the ordinary form, but whether looked at in sunshine or shade the pale delicate colour of the upper side was quite unlike any one of the species I had ever seen. With more care than is usually bestowed on *Danais Plexippus*, I packed it in folds of paper, and on the spot carefully noted date and locality. About a year later, when in England, and looking over my Australian butterflies with my friend Mr. Charles G. Barrett, I specially commended to his notice this pale variety, and it was with great interest that we waited for the relaxing of the insect, and when this carefully dated *D. Plexippus* unfolded its wings there was not a trace of the pale greenish tint to be seen, but instead, the usual rich golden-tawny, only a little deeper and richer than usual. Out of scores of this butterfly that I have reared from the larvæ, not one ever showed a tint resembling this one at the time of capture, and among the thousands I have seen in a natural state none ever varied in a notable degree from the ordinary form.

Worthing: October, 1894.

CAUSTIC POTASH AS AN ENTOMOLOGICAL DETERGENT.

BY W. F. H. BLANDFORD, M.A., F.Z.S.

Every student of *Coleoptera*, whose interest in the subject extends beyond the recently captured contents of his own and his friends' store boxes, is painfully aware of the trouble, hindrance and vexation due to the dirty and mouldy state of many important examples which he is called upon to examine. Save for a few most carefully kept collections, every large accumulation of beetles contains hundreds of specimens, none of which presents any intelligible characters until it has been laboriously cleaned and restored as nearly as possible to its original condition.

Fortunately, this can be accomplished more satisfactorily with beetles than with insects of any other Order, and so innumerable examples survive which would have disappeared by gradual decay, or been thrown away had they belonged, say, to the more delicate *Lepidoptera*.

A dirty insect may owe its condition to one or more causes, of which the principal may be considered—

ORIGINAL DIRT, existing on the insect at the time of its capture, never removed, and becoming more difficult to remove with lapse of time: thus, the *Histers*, *Aphodii* and other scatophagous beetles are often besmeared with their source of nourishment; wood-boring species may have the recesses of their elytra clogged with the dust of their burrows; some *Hydradephaga*, *Georyssus*, *Lacon*, many Weevils, some *Tenebrionidæ*, &c., have their sculpture partly or completely obscured with a crust of mud, earth or particles of sand.

GREASE.—This affects a large number of species, for example, *Geodephaga*, *Coccinellidæ*, *Prionidæ*, wood borers and *Phytophaga*. Sometimes, by spreading internally, it changes the colour of the specimen, testaceous and pale markings being very apt to disappear in certain Families. Sometimes it forms a crust on the outside, which conceals the surface colour, particularly if metallic, or exudes in fatty drops, which with lapse of time become opaque and waxy, and very difficult to remove.

MOULD.—This does not appear on insects kept in a suitably dry place, but many old collections which have undergone vicissitudes, and those kept in the damp, particularly in country houses and near the sea, suffer terribly, and may have scarcely an example free from it. Beginning as a rule on the antennæ, it spreads over the body, clogs

the limbs, and eventually covers the insect with a mass of hyphæ till its original form is lost, and it looks like a mass of dirty cotton wool stuck on a pin.

DIRT, accumulated on the specimens since their capture and cemented by grease and mould, consisting of the floating dust of the air, the *débris* caused by mites, or derived from such extraneous sources as the box of a snuff-taking entomologist.

Some old specimens present an indescribable mixture of grease, mould and dirt, which at first sight appears to defy the utmost efforts of the would-be cleaner.

The ordinary methods employed for cleaning dirty specimens, useful in their way, are inadequate when the deposit is unusually formidable. Among them are grease solvents, as chloroform, ether and benzine; soap and water; and alcohol of various strengths, sometimes with the addition of carbolic acid.

The grease solvents referred to are of great use in cleaning specimens of which the colours have been darkened by the flow of grease inside the body, a matter very often observed in *Coccinellidæ*; the insects are immersed in the solvent for forty-eight hours or more, as with greasy *Lepidoptera*, and then dried. They are also valuable for restoring the appearance of a specimen with a *thin* deposit of grease or dust on the outside, being applied with a brush. Even here they are often unsatisfactory; unless the internal grease has been removed by immersion, they dissolve out fresh quantities, and as each application of the liquid dries off, so does the surface become dull and spotted again, requiring a fresh wipe with the brush and often defying any attempt to clean it thoroughly. In such cases an almost dry brush should be used, just moist enough to remove external dulness and not to bring out fresh grease.

This is the most convenient way of cleaning specimens which have suffered no more than the ordinary deterioration due to a few years' sojourn in a store box; and of the various solvents, chloroform is the most pleasant to use, is not inflammable, and (as Dr. Knaggs has shown) most quickly dissolves the grease. But all these reagents are useless for the cleaning of really dirty and mouldy specimens; they remove no more than the grease, and not always that if it has become waxy with age.

Soap and water, and alcohol with or without carbolic acid, are employed when the insects are really dirty. They are inadequate, and

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demand much rubbing of the specimen if it is to become genuinely clean, as they do not possess sufficient detergent power. Moreover, it is necessary to relax the specimens in order to handle them safely, and this often causes a delay of several days, which, irritating in itself, may make it impossible to properly examine insects which cannot be removed from the collections to which they belong.

A careful examination of insects cleaned by such methods too often shows that while they appear superficially clean, there are under the head, in the joints of the armour and round the legs, neglected deposits of dirt which are always harder to remove than they were at the time of the original cleaning.

And there is certain to be such a deposit on the precise spot which it is desired to examine.

Necessity, that chiefest of stimuli, has led me to devise a method for cleaning such begrimed specimens, which in my hands, and those of my friend Mr. Champion, has proved more convenient and effectual than any of the above, on which Entomologists mostly rely. It consists simply in the judicious use of caustic potash.

The materials required are two wide-mouthed stoppered bottles, one containing methylated spirit, the other a strong solution of potassium hydrate in distilled or soft water; the exact strength is immaterial, about two drachms to the ounce of water may be conveniently used. Also a suitable vessel for washing the specimens, such as a small white "developing dish" containing distilled water or water free from lime, a supply of brushes (preferably sable), sheet cork and blotting paper. Care must be taken not to dip the brushes into the potash solution or they will be rapidly destroyed, and not to allow drops of it to fall on the experimenter or his surroundings.

The beetles to be cleaned need not, indeed should not, unless very rigid and brittle, be relaxed before cleaning.

Take off the labels, and holding the point of the pin, dip the insect into the spirit. This is to enable the potash to attack the surface, and is chiefly necessary when the specimen is very mouldy. Remove it from the spirit to the potash solution, immersing it from 5 to 30 seconds; the time depends on the dirtiness of the specimen and on the amount of rigidity which its limbs possess. A little practice will show how long will be required.

Drain off the superfluous potash on the side of the bottle, and pin the insect on a piece of cork for three or four minutes while others are proceeded with. Then hold it under water in the dish and

carefully remove the dirt from the surface with a brush. Mould, if not caked by previous attempts at cleaning, peels off readily.

After the potash is removed by the thorough washing, take the insect out of water and clean it further with the brush, using a magnifier if necessary. The legs and antennæ should be brushed from base to apex, and can be thus entirely freed from dirt. If due care is used, particularly in cleaning the tarsi, there is little risk of their being broken, as they will be relaxed to some degree by the action of the potash; indeed, many beetles, as *Geodephaga*, which are not particularly rigid, can have their limbs brushed out and set off-hand. It is a good plan to pass the pin through a piece of blotting paper on which the limbs can be brushed. Some dirty specimens, particularly those covered with old waxy grease, will require at least a second immersion in potash for some half minute. The grease turns white and opaque, and at the end of that time is usually sufficiently saponified to allow of its removal with the brush. A few extremely filthy examples will require from five to fifteen minutes' immersion in potash, and unless very delicate will not be hurt by it.

The specimen when clean may be allowed to dry, and the labels returned to the pin. If it is pubescent, it may be dipped into alcohol for a few seconds to replace the water; the alcohol should be removed as far as possible with blotting paper and the specimen quickly dried, preferably by heat. With some beetles it is almost impossible to prevent the hairs matting, but this will occur with any method of cleaning employed. It might answer to immerse them in ether instead of alcohol, and to dry them by any of the methods familiar to those who clean *Lepidoptera*; but ether is difficult to keep and dangerously inflammable, and therefore best let alone.

The only dirt I have found to defy this method is the sandy substance ingrained in the elytra of such insects as *Pimelia*. On it the potash is necessarily inert.

It may be thought that so drastic a cleaning would injure at least the colour or clothing of the specimens. I have not found this to be the case. In all examples I have tried the pubescence has remained quite intact, and in this means of cleaning less violent brushing is required than in any other. I have not experimented on any Weevils of which the scales are readily detachable, but see no reason why they should suffer more than if washed with soap and water and alcohol. Of course, if soft-bodied beetles are left unduly long in a solution which will destroy them in time, and thereby come to pieces, the fault is in the judgment of the experimenter and not in the method. It is

for this reason that relaxation is not desirable, as the potash is apt to enter the bodies and loosen the limbs of relaxed specimens.

Light colours are sometimes found to be darkened after cleaning, but they seldom if ever fail to return upon thorough drying. If a metallic or polished surface appears tarnished, as sometimes though rarely occurs, the tarnish can be at once removed by a drop of chloroform, and will not reappear.

The verdigris and dirt are removed from the pin, which is unaffected by potash, the former, if in lumps, will require picking off with a needle; the pin is almost always loosened in the body, and can be fixed with a touch of shellac on the under-side, or better, withdrawn, especially if corroded, and a fresh one substituted.

If the beetle is carded, the upper surface of the card alone should be allowed to touch the potash; the insect should be cleaned with brush and water on the card, but will soon become detached, and after immersion in water to remove the potash, should be laid on moist blotting paper for the cleaning to be completed, dried and recarded. Staged specimens with the pins cut short are troublesome to clean, but the difficulty is one of manipulation.

The whole time required between removing a dirty insect from a collection and returning it cleaned and re-pinned does not usually exceed fifteen minutes, much of which can be occupied in treating other examples.

Specimens so cleaned have shown no signs of subsequent deterioration. Whether mould is apt to recur on them under suitable conditions I cannot say; the potash and alcohol must kill the hyphæ as far as they soak into the body, and there can be no objection to giving the insects the final immersion into alcohol containing carbolic acid, or, if preferred, corrosive sublimate (1 grain to 4 ounces).

I have used this treatment with fair success in cleaning *Heteroptera*, which require, however, very delicate handling, and even *Hymenoptera* and *Diptera*. But the latter are troublesome, as the hairs become matted, and it is difficult to prevent the wings from becoming pleated.

Though it is possible with practice to thus clean insects belonging to the latter Orders, I should hesitate to recommend it at present; but any one with a quantity of mouldy specimens can easily experiment on, and perhaps save material which he would otherwise have consigned to the rubbish heap.

48, Wimpole Street, W.:

October, 1894.

RELAXING INSECTS WITHOUT AQUEOUS VAPOUR.*

BY H. GUARD KNAGGS, M.D., F.L.S.

For some time past I have been casting about for a fluid or vapour (non-aqueous) which would render dried specimens of insects sufficiently pliable to permit of their being reset, when badly displayed, sprung, or not set at all, without the aid of those mildew and putrefaction causing agents—the damp sand pan and laurel jar; but hitherto all attempts on my part have proved failures. Recently, however, through the kindness of my friend Mr. Clark, of Hackney, who has imparted to me his method, and given me permission to publish it, the object of my search has been attained, and it is with much pleasure that I am now enabled to place at the disposal of your readers a simple but effective means of “relaxing” without the use of watery vapour.

The following is the *modus operandi*:—Take up the insect by the pin in one hand and hold it upside down; then with a camel's hair brush dipped in “wood naphtha” (pyroxylic spirit) in the other hand soak each side of the thorax, close to the insertions of the wings, till the spirit extends, say, half way along the latter; then put the insect aside for three or four minutes, by which time it will probably be supple enough to manipulate, but if not, repeat the process and wait another one, two, three or four minutes, which will almost surely suffice, unless the specimen be very large or old, for of course the time taken to soften the tissues will depend greatly upon size, age and condition; but, as a general rule, not more than three or four minutes will be required for the purpose. The operator should have a saddle at hand, and, as soon as ever relaxation has commenced, should start to get the wings into position, bracing them down firmly as the work proceeds; after an interval of twelve or twenty-four hours the braces may be removed, and the specimens will show no inclination to “spring,” nor will any visible stain be left. The uninitiated may find a little difficulty at first, but proficiency will come with practice.

By this method insects may be reset in any position, and if the antennæ be also soaked they may be arranged to the fancy of the operator.

It seems to me that entomologists ought to feel very grateful to Mr. Clark for making this discovery known.

London, N.W.: December 5th, 1894.

* A writer in the October number of the “Entomologist” draws attention to the fact that naphthaline will keep freshly caught insects relaxed for some days, even in a tropical climate; but this is a different thing from relaxing specimens *after* they have been dried! If naphthaline relaxed dried insects it would be a bad look out for those numerous entomologists who employ it so freely in their cabinets for the purpose of protecting their collections against mites and mould.—H. G. K.

VESPEROCTENUS, BATES, AND ITS SYSTEMATIC POSITION.

BY C. J. GAHAN, M.A., F.E.S.,
OF THE BRITISH MUSEUM (NAT. HIST.).

When Bates described this genus a few years ago (*Ent. Mo. Mag.*, 1891, p. 159) he unhesitatingly referred it to the *Longicornia*, and stated that it was, "without doubt, closely allied to our European genus *Vesperus*."

But in a recent paper on the *Coleoptera* of Baja California [*Proc. Cal. Acad. Sci.*, ser. 2, vol. iv (1894)], to which Mr. Champion has kindly called my attention, Dr. George H. Horn has had occasion to treat of the genus, and has put forward an entirely different view with regard to its systematic position. Placing it in the Family *Rhipiceridæ*, Dr. Horn writes, "I never would have suspected that Mr. H. W. Bates, with whom the *Cerambycidæ* were a special study, would have placed this insect in that Family." Then having given a summary of the characters of the genus, Dr. Horn adds, "While I greatly regret to differ so radically from my lamented friend H. W. Bates in the systematic position of this insect, the aggregate of its organization points to the Family in which it is here placed. The fact that the tarsi are five-jointed removes it from association with any but the most aberrant *Cerambycidæ* in the earlier groups of *Prionides*, with which no one would pretend to associate this insect." In conclusion of his note Dr. Horn suggests "that *Vesperoctenus* be placed near *Callirhipis*, from which it differs in its twelve-jointed antennæ and the small fourth tarsal joint."

After the expression of such an opinion by the foremost Coleopterist on the other side of the Atlantic, I have thought it well to examine again the characters of the genus as exhibited by the single male specimen in the British Museum collection, notwithstanding that previous examinations gave me no ground to suppose that Bates was otherwise than perfectly accurate in the position he assigned to the genus. Proceeding in the light of Dr. Horn's suggestions, and comparing *Vesperoctenus* with *Callirhipis*, I find that beyond the flabellation of the male antennæ, and the conico-cylindrical coxæ of the anterior and middle legs, there is little else in common between the two genera to lead one to suppose any near affinity between them. *Vesperoctenus* has coarsely faceted eyes of a Longicorn type; while the eyes of *Callirhipis* and all the *Rhipiceridæ* are very finely faceted, smooth and glassy looking. The scutellum of *Callirhipis* rises abruptly from the mesonotum, forming a button-like projection fitting in between

the elytra and a mid-basal notch in the pronotum. The scutellum and mesonotum of *Vesperoctenus* are exactly like those of most *Prionidæ*, and of certain aberrant *Cerambycides*. The intercoxal process of the prosternum in *Callirhipis* does not reach back to the hind margin of the coxæ, but is met about half way by an anterior process of the mesosternum; between the middle coxæ may be seen a similar narrow process of the metasternum advancing to meet the intercoxal process of the mesosternum. These anterior processes of the meso- and metasterna are not observable in *Vesperoctenus*. The last joint of the tarsi of *Callirhipis* is as large as the four preceding joints taken together, and is furnished with a rather long, setose onychium. In *Vesperoctenus* the last tarsal joint is not longer than the first, nor is it provided with a prominent onychium. In fact, in the one example I was able to examine I could find no trace of the existence of any structure that could be interpreted as an onychium; but it is right to state that Dr. Horn lays stress upon the presence of this structure in *Vesperoctenus*, and has figured prominently the two long setæ which, it is to be presumed, spring from it. Even admitting that an onychium may be present in *Vesperoctenus*, I think that on the whole the differences between this genus and *Callirhipis* are so great that none but the remotest affinity can be conceded to exist between them.

On the other hand, when *Vesperoctenus* is compared with *Vesperus* and its allies, the close affinity it bears to this genus of *Longicornia* is, to my mind, quite obvious. Bates has pointed out all the differences worth noting between *Vesperus* and *Vesperoctenus*. Though the fourth tarsal joint is a little longer and more distinct in Bates's genus than in *Vesperus*, it certainly is not longer nor more distinct than in *Apatophysis*, for example, which stands not far from *Vesperus* in Lacordaire's system; or in *Paraphilus*, a genus which I have not long since described and placed near *Vesperus*. The anterior and intermediate coxæ of *Vesperoctenus* are not more approximate than in *Vesperus*, nor are they more conical and prominent than in this and certain other Longicorn genera. As a further character of *Vesperoctenus*, pointing in a very marked way to its affinity with *Vesperus*, may be noted the peculiar arcuate emargination of the anterior border of the prosternum.

In fact, I believe that Dr. Horn himself, were he really acquainted with *Vesperus*, and those other genera which I have mentioned, would be one of the first to admit that *Vesperoctenus* naturally falls into the same group. From Dr. Horn's omission of any reference whatever to *Vesperus*, I am inclined to suspect that he had no examples of this genus for comparison; but if so he should not so hastily have at-

tempted to propound novel views where all the necessary materials were not at his hand. The result, to my thinking, is that he has fallen into a serious error, which is all the more regrettable since it imputes carelessness or worse to our distinguished and lamented colleague Bates in some of the last entomological work on which he was engaged.

December 14th, 1894.

SCIOPTERYX CONSOBRINUS, KL., AN ADDITION TO THE BRITISH
TENTHREDINIDÆ.

BY THE REV. E. N. BLOOMFIELD, M.A., F.E.S.

Hitherto only one species of *Sciopteryx* has been recorded as occurring in Great Britain, but I can now add a second, which was taken in Guestling by Mr. W. Bennett on April 3rd, 1893.

S. consobrinus differs from *S. costalis*, more particularly, in having "the mouth, orbits of the eyes, and stigma quite black, and the wings hyaline," while *S. costalis* has the wings fuscous, the base of the costa and stigma ochreous-yellow, and the orbits of the eyes more or less white.

The above-mentioned specimen has been compared with examples in the British Museum, and appears to agree in every particular.

Guestling Rectory:

November 20th, 1894.

SUPPLEMENTARY NOTES ON THE LEPIDOPTERA OF ENNISKILLEN.

BY LIEUT.-COL. C. E. PARTRIDGE.

Finding myself still in Enniskillen, I commenced in the spring of this year to work further afield, and try to materially add to the list made during 1893.

Owing, however, to persistent wet weather, and, if possible, a worse season than last, I only managed to add 113 species, making for the two years a total of 396. Sugar was again a complete failure, and I think half a dozen insects would represent my take. Few insects were seen on the wing, and flowers were equally unproductive.

The vast stretches of heather and mountain bog remain unexplored, and as my time here shortly expires, will continue to remain so unless others take up the work.

Vanessa Io, a few only; *Satyrus Megæra*, scarce; *Zygæna loniceræ*, one taken; *Charocampa Elpenor*, three taken at flowers; *Macroglossa bombyliiformis*, two taken over scabious; *Spehcia bembeciformis*, Ely Lodge, larvæ not scarce; *Nola cristulalis*, lanes, a few only; *Nudaria mundana*, lanes, fairly common; *Lithosia rubricollis*, not scarce; *Orgyia antiqua*, heaths, a few larvæ taken; *Ellopia fasciaria*, a few larvæ beaten; *Selenia lunaria*, one bred from pupa dug; *Himera pennaria*, common in larval state; *Boarmia repandata*, a few; *Geometra papilionaria*, a few larvæ beaten; *Strenia clathrata*, scarce; *Panagra petrararia*, common; *Oporabia dilutata*, common in larval state; *Larentia cæsiata*, mountains, two taken; *Eupithecia coronata*, one bred from larva; *Hypsipetes impluviata*, lanes, a few; *Clostera curtula* and *reclusa*, bogs, very common in larval state on dwarf sallow; *Notodonta dromedarius*, a few larvæ beaten; *Diloba cæruleocephala*, one larva in my garden; *Ceropacha flavicornis*, bogs, a few larvæ on stunted birch; *Luperina cespitis*, mountain, one ♀ taken; *Apamea ophiogramma*, one taken; *Miana fasciuncula*, lanes, common; *Agrotis segetum*, lanes, very scarce; *Noctua xanthographa*, common; *Tæniocampa populeti*, Loch Erne, larvæ taken, but not yet emerged and verified; *T. munda*, few pupæ dug, producing very fine forms; *Orthosia macilenta*, one at ivy; *Tethea subtusa*, Loch Erne, common in larval state; *Xylina rhizolitha*, one only; *X. petrificata*, scarce at ivy; *Anarta myrtilli*, common on mountains; *Plusia bractea*, one at thistle bloom; *Pyrausta punicealis* and *ostrinalis*, common; *Cataclysta lemnalis*, common, but local; *Hydrocampa nymphæalis*, common; *Pionea forficælis*, garden, a few; *Scopula ferrugalis*, two at ivy; *Scoparia atomalis*; *S. cratægella*, scarce on oak trunks; *Crambus margaritellus*, common, but very local; *Halias prasinana*, few bred from pupæ found; *Tortrix icterana*, common; *T. ministrana*, one only; *T. heparana* and *adjunctana*; *Peronea comparana*, *perplezana*, *Schalleriana*, and *variegana*, lanes, all common; *P. ferrugana*, lanes, a few; *P. aspersana*, a few bred; *Teras contaminana*; *Dictyopteryx læstingiana*, a few bred; *Ptycholoma lecheana*; *Penthina dimidiata*, moors, very common in larval state; *Sciaphila virgaureana*, common; *Grapholitha Paykulliana*, scarce; *G. nisana*; *Phlæodes tetraquetra*, not common; *Hypermercia cruciana*, common; *Batodes angustiorana*; *Pædisca corticana*, common; *P. ophthalmica*, fairly common; *P. Solandriana*, scarce; *Ephippiphora ravulana*, one only, the first occurrence, probably, of this rarity in Ireland; *Stigmonota perlepidana*, very common; *Eupacilia ciliella*, not scarce; *Xanthosetia hamana*, scarce; *Tinea tapetzella*; *Micropteryx calthella*, common; *M. Allionella*; *M. Sparmanella*; *Adela rufimitrella*, the specimens taken last year were very rich in colour, almost coppery, but the rich colouring has not been so apparent this season; *Nemophora Schwarziella*, common; *Cerostoma radiatella* and *costella*, larvæ common; *Depressaria conterminella*, *angelicella*, *ocellella*, and *ciliella*, a few bred; *Endrosis fenestrella*; *Argyresthia retinella*, *pygmæella*, and *Brockeella*; *Coleophora deauratella*, two only, a scarce species, quite new to Ireland; *C. discordella*, scarce; *C. cæspititiella*, common; *C. laricella*, scarce; *C. fuscadinella*, common; *C. viminetella*, common on *Myrica gale*, but not on sallow; *Chrysoclista Schrankella*; *Lithocolletis salicicolella* *ulmifoliella*, *quercifoliella*, *alnifoliella*, *Cramerella*, and *Nicellii*; *Opostega crepusculella*, not scarce.

Enniskillen: November, 1894.

PRE-OCCUPIED GENERIC NAMES IN ENTOMOLOGY.

BY W. L. DISTANT, F.E.S.

In the October number of this Magazine (p. 230) a communication from Mr. Meyrick on Pre-occupied Generic Names in *Lepidoptera* has once more drawn my attention to a reform I have long thought possible.

At the present time it is not unfrequent to discover that the founder of a genus, who with special knowledge and labour has diagnosed and enunciated the characters appertaining to that genus, has still used for it a pre-occupied name. It therefore becomes necessary to substitute an unused one in its place, and it is open for any entomologist least versed in the special knowledge of generic differentiation to invent or propose a new word, and thus take precedence of the original describer. All catalogues bear witness to this; there is scarcely a monographic writer who has not at some time been compelled to do it, and I venture to think, judging from my own experience, that few feel much satisfaction with the necessary operation. The practice of this substitution of names and acquisition of generic parentage could be reduced to pure bathos. Years ago I pointed out that the well-known name *Zygæna*, as used in *Heterocera*, had been subsequently appropriated in *Pisces*, and there is nothing to prevent a collector of British Moths, by the substitution of a name, to figure as the creator of a genus of sharks.

Now, admitting the necessity of priority in nomenclature as I do, it seems that a very excellent work would be achieved by either the Editors of this Magazine, or by a Committee of the Entomological Society, at once revising *en bloc* all pre-occupied entomological generic names. The labour would not be excessive in the present day, thanks to the mass of classifying literature which has already appeared. The benefits would be accuracy, the substitution of non-outrageous names (for some classical scholar could be induced to provide them), and, what is more to the point, the name of Edt. E. M. or Ent. Com. would be attached to the new appellation, and thus show at once that the authors of the name were not the original describers of the genus. Trouble in reference would thus be avoided and justice maintained.

The subsequent supervision of generic names in the yearly Zoological Records would be a light matter if undertaken by the same revisers.

Pretoria, Transvaal :

October, 1894.

[We are of opinion that the time of the Editors of this Magazine, or of a Committee such as suggested, can be much more usefully employed, and that such work should be relegated to those authors specially concerned, *as occasion may require*.—EDS.]

Lithocolletis messaniella in November.—On November 5th, I found a fresh specimen of *L. messaniella* in Highgate Wood; and on the 10th, two other specimens on a fence, in company with *Cheimatobia brumata*. The species was common in May, and again in August, and as the August brood had disappeared for quite two months, these November specimens must have been a partial third brood.—C. W. WARRE, Hampstead: November 18th, 1894.

A remarkable source of attraction to Noctua.—On September 22nd last, I was enjoying the hospitality of my friend Mr. Griffiths, at his lodgings at Bembridge (Isle of Wight), and in the evening of the same day we made our way to a small wood in the neighbourhood, to see what it might afford us in the way of *Lepidoptera*. The prospect was not encouraging, much rain had fallen during the day, the herbage was soaked, and the few trees we sugared only yielded among them a wasted specimen of *Amphipyra pyramidea*.

On our return our lanterns happened to be directed on to the hedge, a gap in which had been partially filled up with some hawthorn boughs, cut a few weeks previously apparently, and with the dead leaves still attached, and which were emitting the peculiar odour which leaves, withered green on a branch, give off on saturation with moisture. To our great surprise we noticed quite a crowd of *Noctua* thereon, and a closer examination revealed the fact that the moths were busily engaged in sipping the moisture on the withered foliage. The species present consisted mainly of *Xanthia silago*, which was in abundance, together with a few *Phlogophora meticulosa*, *Anchocelis lunosa*, and *Xanthia ferruginea*. Owing to the thickness of the bush and undergrowth, we were unable to identify (much less box) all the visitors at this novel feast. The moths would slip down into the herbage if disturbed, only to fly up again in a few minutes and resume their meal. This peculiar attraction seemed to have been superior to sugar or to flowers, as no moths were observed on the heads of ragwort and hemp-agrimony growing close by.—R. M. PRIDBAUX, Carisbrooke, Isle of Wight: November 22nd, 1894.

Ibalia cultellator, Latr.—Two specimens of this rare insect, well known from Curtis's plate, have been communicated to Mr. Bignell, who sent them to me to be determined. They were taken in March, 1888, by Mr. J. Gardner, at Hartlepool, where *Sirex juvenus*, L., is unusually common in old pit-props. The *Ibalia* has long been supposed to be a parasite of *Sirex*, and the circumstances of its capture at Hartlepool leave little room to doubt that this is the case. Its rarity probably results from mere want of observation: at a distance it much resembles an Ichneumonid of the *Campoplex* genus, and might easily be neglected when seen, like the rest of that family. The *Sirex*, though local, is found in considerable colonies where it occurs, and each of them is likely to be attended by a proportionate number of the parasites. The older writers, as remarked by Curtis, conjectured *Ibalia* to be a

gall-maker, but subsequent discoveries on the continent, as well as the characters of the insect, have shown it to belong to the parasitic division of the *Cynipida*.—T. A. MARSHALL, Botusfleming Rectory, Cornwall: December 12th, 1894.

Note on an American tortoise, and the Coleoptera that follow it.—Mr. John Hamilton, in a letter to me, dated October 9th, answers some enquiries of mine regarding a curious Histerid, which has lately been discovered in the burrows of an American tortoise. I had seen some account of it in "Insect Life," but as this publication has not, I believe, a very wide circulation, either here or on the continent, it may be of interest if I give an extract from Mr. Hamilton's letter:—

"From what you say in your letter, I infer you have not seen Mr. Hubbard's account of *Gopherus Polyphemus*, and the descriptions of the beetles, &c., published in 'Insect Life,' vol. vi, pp. 302—315.

"This tortoise grows to ten or twelve inches in length, and is supposed to live 100 years or more, always inhabiting the same burrow, unless compelled to dig a new one. The place selected is a sandy plateau (in Florida) among dense growth of low palms, scrub, live oak, &c. The top layer of white sand, where I found them, was about four feet deep, and beneath this there was a deep layer of yellow sand compacted to near the hardness of sand-stone. The object of the tortoise is to penetrate the last about two feet, and there it stops. To reach it, the tortoise digs at a measured angle of 35°, which, to attain a depth of about five and half feet, requires a burrow about twelve feet long. If the upper sand is deeper, as it is in some localities, say seven or eight feet, the burrow must be proportionally longer. The turtle is a vegetable feeder, and has an intestine an inch in diameter, and its evacuations are very large, and composed almost entirely of vegetable fibre. At the end of its burrow there seems to be an excavation for the excrement, and in this the beetles live.

"Mr. Hubbard has taken double the number of species of *Coleoptera* I did, and each species in much larger numbers, digging in July and August. He has described *Onthophagus polyphemi* and *Philonthus gopheri*, and he has also a *Trichopteryx* and three species of *Brachelytra* yet to describe. If you have seen Mr. Hubbard's paper this may still interest you, as there are some things here which he does not mention. The digging for Gophers, with the temperature nearly 100° in the shade, and in such a place as I have described, is about as difficult entomological work (physically speaking) as is ever encountered."

The tortoise, or one similar to it, occurs in Mexico and other countries, so that the area over which the *Coleoptera* may be found is a very large one, and, I think, the method of hunting for them tried by Mr. Hubbard and Mr. Hamilton is likely to lead to the discovery of numerous species. I saw a great many tortoises in Algeria this spring, and although the species is not a burrower like *Gopherus Polyphemus*, I think it is highly probable some small stercoraceous beetles are more or less attached to them.—G. LEWIS, Archer's Road, Southampton: October 22nd, 1894.

The genus Ithaca, Olliff.—In the Proceedings of the Linnean Society of New South Wales, 2nd series, ii, pp. 152—154 (1888), Mr. Olliff described a supposed new genus and species of *Edemerida* from Tasmania, under the name of *Ithaca anthina*, and remarked upon the extraordinary structure of the antennæ. This

same species was described at great length by Newman in 1851 (Zoologist, App., pp. cxxxiii—cxxxvii), under the name of *Dohrnia miranda*, and he also commented upon the peculiar structure of the antennæ. Males only were known in each case. The females have the antennæ simple, and the fifth ventral segment unemarginate. Numerous specimens of both sexes are contained in the British Museum, some of which were exhibited by Mr. C. O. Waterhouse at the Meeting of the Entomological Society of London on May 2nd, 1877. The peculiar distortion of the joints 5–7 of the antennæ in the male is suggestive of a somewhat similar character in various species of *Meloe*. — G. C. CHAMPION, Horsell, Woking; *December 18th*, 1894.

Entomological Pins.—While the question of improvements in pins is to front, I would like to suggest that manufacturers should make pins without heads, at any rate, the smaller sizes. Most entomologists now use forceps, and a pin without a head would certainly be more convenient to take hold of; also the danger of jerking an insect out of position through the forceps catching against the pin head when being withdrawn would be avoided, and possibly a little less unparliamentary language would be used. Headless pins would probably be cheaper.—RALPH C. BRADLEY, Sutton Coldfield: *December*, 1894.

[I quite agree with our correspondent's suggestion, so far as the small sizes are concerned. Of course the Editors of this Magazine never (or hardly ever) use "unparliamentary" language, but the big heads of short small pins are a standing temptation they would like to avoid.—R. MOL.]

Official restrictions on the distribution of entomological specimens.—The report of what took place at the last meeting of the Entomological Society of London, in our present No., gives publicity to a vagary of our Postal authorities, who after having given permission to the sending of insects by sample post to places abroad, now declare packets so posted to be "contrary to regulations," and return them to the senders. As bearing on this, we extract from a popular weekly the following note, translated from the German "*Neckarzeitung*:"—"A recent freak of the Russian Custom House authorities has been communicated to us by a friend in Helsingfors, Finland. An entomologist, residing in that town, not long ago sent a rare fly from Lapland to a brother scientist in Italy, but had the parcel returned from the Russian frontier with the note—'The importation of dead animals into Russia is prohibited.' The parcel was subsequently forwarded *via* Sweden."—EDS.

Reviews.

BUTTERFLIES AND MOTHS (BRITISH): by W. FURNEAUX, F.R.G.S. Pp. 350, 8vo, with 12 coloured plates and numerous illustrations in the text. London: Longmans, Green and Co. 1894.

This may be classed as a Christmas book, and will compare favourably with the host of other works on the same subject, differing chiefly in the method of treatment. It purports to figure and describe all the British Butterflies and a selection of the Heterocerous Macros, with copious chapters on structure, preservation, collecting, &c., and a list of all the species, concluding with the usual calendar. The coloured plates are good (excepting pl. viii, larvæ, &c.; possibly they are somewhat under-coloured, the fault in such works usually being the other way. It is well got up, and nicely printed, and is a safe book for a present at the price.

NOMENCLATOR COLEOPTEROLOGICUS. EINE ETYMOLOGISCHE ERKLÄRUNG SÄMTLICHER GATTUNGS-UND ARTNAMEN DER KÄFER DES DEUTSCHEN FAUNENGEBIETES. Von SIGM. SCHENKING. Pp. 221, 12mo. H. Bechhold, Frankfurt a/m. 1894.

We have not critically analyzed this work, but it professes to give an alphabetical List of all the genera of German *Coleoptera*, with the derivations of the names, and, if approximately correct, should be useful to many of our own Coleopterists. A list of specific names is treated in the same manner. And finally there is a list of vernacular names with the scientific equivalents. We cannot refrain from noticing one amusing error in the specific list. It is there stated that "Reyi" is named after "the English entomologist Cl. Rey," a confusion of our own E. C. Rye with the French Claudius Rey. Then, again, taking haphazard the name "*Opatrum*," we find "derivation unknown;" surely the derivation is not far to seek in any Greek Lexicon. About 2400 generic names are referred to. If a second edition is called for, we would suggest that the addition of the date of each generic name would be useful.

Obituary.

Hugo Theodor Christoph.—This well-known entomologist and traveller died at St. Petersburg on October 24th, 1894. He was born in Saxony on April 4th, 1831, and became engaged in educational duties. In 1858 he went to Russia, and established himself as teacher at Sarepta, and to him is mainly due the vast number of new forms described from that place. In 1870 he commenced a series of entomological expeditions to various parts of the Russian empire and adjoining countries, including, amongst others, Transcaspia, Transcaucasia, Amurland, and North Persia, making 23 journeys in all. The results of these expeditions have been given in many continental publications. Though especially a Lepidopterist, he collected all Orders, and there are few collections of palaearctic insects of any note that do not contain some of his materials. Since 1880 he had been curator of the entomological collections of the Grand Duke Nikolai Michailowitch of Russia. He was a diligent collector and a keen observer.

Francis Buchanan White, M.D., F.L.S., &c., died at his residence at Perth on December 3rd, 1894. He was a man of powerful physique, and the announcement of his decease would have come as a shock had we not been somewhat prepared for it by the report of a friend who had seen him a short time previously. He was born at Perth on March 20th, 1842. His father (who survives him) practiced medicine in that city. Buchanan White was himself educated for the medical profession, and passed with distinction, but never practised, preferring to devote his life to the pursuit of Natural History generally, and a study of the flora and fauna of Scotland in particular. He was a thorough mountaineer, and probably no other man had so intimate an acquaintance with the Scottish Highlands. His discoveries in all branches were numerous; in entomology perhaps the most conspicuous were *Zygana exulans* and *Cordulia metallica*. What was probably his first published communication appeared in the "Intelligencer," vol. ii, p. 51, and is dated May 5th, 1857. Subsequently he was a constant contributor to that periodical, and to this and other Magazines and Natural History publications. In 1871 he established the "Scottish

Naturalist," a quarterly journal, and continued to edit it down to 1882. In conjunction with the late Sir Thomas Moncreiffe he founded the Perthshire Society of Natural Science, was for long its President, and edited its Transactions. He joined the Entomological Society of London in 1868, and the Linnean Society in 1873. On the whole we should probably consider White's bent as tending towards Botany more than Zoology: one of his latest papers was an attempt to discriminate the British Willows, which was published in the Journal of the Linnean Society in 1890. But his versatility was great, and his knowledge of almost all branches of Scottish entomology very extensive. At one time he commenced collecting exotic *Hemiptera*, and acquired much material, an indirect outcome of which was his memoir on the Pelagic *Hemiptera* collected during the "Challenger" expedition, which showed great powers of research, and was proof of what he could have done had he concentrated his attention. He seldom visited England, and hence was little known personally down south, but his death makes a conspicuous gap in the enterprising group of naturalists north of the border. He leaves a widow and large family.

John Richard Wellman.—On the cover of our last No. we alluded to the death of this well-known British Lepidopterist, which occurred on November 12th, in his 62nd year. He was first President of the flourishing South London Entomological Society, which was established in 1872, and continued to act as such for some years, and was again elected in 1883. He was a genial unassuming man, with much knowledge of his subject, but for several years before his death had been able to do but little actively, owing to ill health.

Societies.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: *December 10th, 1894.*
—Mr. S. J. CAPPEE, F.L.S., F.E.S., President, in the Chair.

Messrs. Harry Jackson, of Bolton, and Rhodes, of Accrington, were elected Members of the Society.

Mr. Robert Newstead, F.E.S., of the Grosvenor Museum, Chester, gave an almost complete account of the life-history of *Scolytus rugulosus*, Ratz., one of the wood-boring *Coleoptera*, and gave detailed descriptions of the boring and oviposition of the insect. The lecture was illustrated by diagrams, specimens, and microscopic preparations shown with the aid of the oxy-hydrogen micro lantern. Mr. Douglas Walker exhibited specimens of *Scopula decrepitalis* and the rare *Phibalapteryx lapidata* recently captured by himself in Argyleshire. Mr. Newstead also exhibited *Lecanium perforatum* and other species through the micro lantern.—F. N. PIERCE, *Hon. Secretary*, 7, The Elms, Dingle, Liverpool.

ENTOMOLOGICAL SOCIETY OF LONDON: *December 5th, 1894.*—HENRY JOHN ELWES, Esq., F.L.S., F.Z.S., President, in the Chair.

Mr. E. Augustus Bowles, M.A., of Myddelton House, Waltham Cross, Herts; Mr. E. C. Cotes, of the Indian Museum, Calcutta; Mr. Wolley-Dod, of Calgary, Alberta, Canada; Mr. Joseph W. Green, of West Lodge, Blackheath, S.E.; Mr. Henry Keeble, of 10, Coleman Street, E.C.; and Mr. Thomas Turner, of Cullompton, Devon; were elected Fellows of the Society.

Mr. F. Merrifield exhibited hybrids belonging to the genus *Saturnia*, obtained by Dr. Standfuss, of Zürich, viz. : a male and female hybrid from a male of *Saturnia pavonia* and a female of *Saturnia pyri*, to which he had given the name of *Saturnia emilia* ; also hybrids from what Dr. Standfuss described as "a male of *Callimorpha dominula*, var. *persona*" (received from Tuscany), and a typical female of *Callimorpha dominula*, to which he had given the name of *Romanovi*. Mr. Merrifield remarked that the so-called var. *persona* differed entirely from the type of *Callimorpha dominula*. Mr. J. W. Tutt exhibited and read notes on specimens of a very small form of *Euchloë*, taken in Shropshire by the Rev. F. B. Newnham, who was of opinion that it was distinct from *E. cardamines*. He pointed out that it was much smaller than the latter species, and that the discoidal spot was placed as in *E. turritus* and *E. Gruneri*. Mr. Tutt also exhibited and read notes on specimens of *Noctua Dahlii*, from Cheshire, Essex, Yorkshire, Aberdeenshire, and other counties. Herr Jacoby read a letter received from Mr. Buxton Forman, one of the Assistant Secretaries of the Post Office, to the effect that the Postal Union had decided to make a rule not to admit Natural History specimens by sample post, which was intended for the transmission of *bond fide* trade patterns or samples of merchandize, and consequently that the forwarding of such specimens at the sample rate would in future be irregular. Lord Walsingham stated that he had had a long correspondence with the Post Office authorities on the subject, and that the late Mr. Raikes, when Postmaster-General, promised him in 1891 that such specimens should, so far as the British Post Office was concerned, be transmitted at the sample rates ; and a letter to the same effect, from the late Sir Arthur Blackwood, when Secretary to the Post Office, was published in the Proceedings of the Society for 1891. Mr. C. G. Barrett exhibited for Mr. A. J. Hodges a specimen of *Hydrilla palustris*, from Wicken Fen ; also specimens of *Caradrina ambigua*, from the Isle of Wight. Of the latter one specimen has the hind margin of the right fore-wing indented, and the wing broadened as though from an injury to the pupa, and the margins of the large orbicular and reniform stigmata had become so joined that the dividing lines had disappeared, and the stigmata were fused into one irregularly formed blotch. Mr. McLachlan exhibited, on behalf of Mr. G. F. Wilson, F.R.S., of Weybridge, a "grease band," which had been tied round trees to prevent the females of *Cheimatobia brumata* from ascending the trunks for the purposes of oviposition ; the band was thickly covered with the bodies of the females, together with a few males. Surgeon-Captain Manders exhibited a pair of *Chelura bifasciata*, from the Shan States, and called attention to the "assembling" habits of the male. Mr. B. A. Bower exhibited a beautiful variety of *Zygæna loniceræ*, Esp., taken at Chattenden Wood, North Kent, in June last ; also a specimen of *Incurvaria tenuicornis*, Stn., taken at Chislehurst, in May, 1893. Mr. H. Goss exhibited, for Mr. F. W. Urich, of Trinidad, a series of males, females, and workers of *Sericomyrmex opacus*, Mayr, a species of fungus-growing and fungus-eating ant. Colonel Swinhoe read a paper, entitled, "A List of the *Lepidoptera* of the Khasia Hills, Part iii." Mr. C. J. Gahan read a paper, entitled, "On the Longicorn *Coleoptera* of the West India Islands." Mr. F. W. Urich communicated a paper, entitled, "Notes on the Fungus-Growing and Eating Habit of *Sericomyrmex opacus*, Mayr." Prof. E. B. Poulton read a paper, by Mr. E. B. Titchener, entitled, "An apparent case of Sexual Preference in a male Insect." The Rev. H. S. Gorham communicated a paper, entitled, "Notes on Herr A. Kuwert's Revision der Cleriden-gattung *Omadius*, Lap."—H. GOSS and W. W. FOWLER, *Hon. Secretaries*.

ENTOMOLOGICAL NOTES FROM THE NORTH OF IRELAND.

BY THE REV. W. F. JOHNSON, M.A., F.E.S.

The year 1894 has been of a disappointing character. The spring seemed to give promise of a fine dry summer, but this promise was anything but fulfilled, for the summer proved to be dull and damp, and most unfavourable for entomological pursuits. The fine spring caused insects to be astir early, and on March 21st I saw *Vanessa urticae* on the wing close to my house, and on the 23rd *Vespa vulgaris* made her appearance in my garden. The 28th and 29th of the same month I spent at Tanderagee with my friend the Rev. W. MacEndoo. On the banks of the river Cushier I took a number of *Bembidium tibiale*, and in the river itself *Hydroporus septentrionalis* and *Gerris Najas*; I also picked up a specimen of *Teniocampa stabilis* floating on a small pond.

On April 2nd I paid a visit to Lough Neagh, and on the shore captured, with commoner species, *Pelophila borealis*, *Elaphrus riparius*, *Bembidium femoratum*, and *Lathrobium quadratum*. Butterflies now began to show themselves freely. *Pieris rapae* first appeared in Mullinure on the 4th. One of my pupils brought me *Anthocharis cardamines* on the 20th, and on the same evening Mrs. Johnson took *Cidaria suffumata*, while on the 27th I saw *Pararge Megæra* for the first time on the wing.

On May 27th there was a flood in Mullinure, and I got some *Eirirrhinus aethiops*, and a few days later, by sweeping, I took *Gastroidea viridula*, *Phyllodecta vitellinae*, *Phædon armoraciae*, *Corymbites quercus* and var. *ochropterus*, *Phyllotreta undulata*, *Crepidodera rufipes*, *Gymnetron labile*, *Baris T-album*, &c.

On May 28th I made a very pleasing capture. I had strolled down to Mullinure, and by some mischance had not brought a net with me, though I had fortunately put a few boxes in my pocket. As I was returning home I noticed a moth dashing about the lane in front of me. In default of anything better I assayed its capture with my hat, knocked it down, boxed it, and, to my surprise and pleasure, it turned out to be *Hepialus lupulinus*. On June 1st Master A. Townsend brought me another specimen, which he had caught in Cathedral Close.

Mr. Barrett's capture of this moth in Galway seems to be the only other record of its occurrence in Ireland, so its appearance here is interesting, and seems to point to the probability of its occurring in other parts of this country.

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Between this date and June 7th I picked up a few *Micros*, comprising *Micropteryx calthella*, *Eupæcilia angustana*, *Pyrodes Rhediana*, *Ornix anglicella*, *Elachista rufocinerea*, and *Chrysoclista flavicaput*. The remainder of June I was on the sick list, and July I spent in Donegal. August was most unfavourable to *Lepidoptera*, and my captures were few. Mrs. Johnson, however, managed to take a nice specimen of *Apamea ophiogramma* in Mullinure one evening; this species has not previously occurred here. I also captured a nice red var. of *Leucania pallens*.

On August 25th I went over to Loughgilly, where I captured *Argyrotoza Conwayana* and *Argyresthia semitestaceella*. On the lake were numbers of *Gyrinus marinus* and *Gerris argentatus*. By beating some trees I took *Phytocoris tilia*.

A few days afterwards I walked over to Richhill, where I took *Adalia oblitterata* on fir trees. On my way I found a large number of *Phratora vitellina* feeding on a willow tree, of which they were making sad havoc. The only other capture worth recording was the Hemipteron *Phytocoris ulmi*, which I got by beating at Richhill.

On September 8th, as already recorded, I took a fine ♂ *Orgyia antiqua*, and in the same locality on a subsequent day *Peronea variegana*, *P. perplexana*, *P. aspersana*, *P. Schalleriana*, and *Teras contaminana*. None of these were at all in the usual numbers.

On September 19th I took a trip down to Lough Neagh, stopping for a short time at Churchhill. On the bog at the latter place I took, by sweeping the heather, &c., *Quedius moloichinus*, *Stenus impressus*, *S. similis*, *Coccinella hieroglyphica*, *Chilocorus bipustulatus*, *Haltica palustris* (I think), *Lochinæ suturalis* in numbers, also the Hemiptera, *Tropicoris rufipes* and *Scolopostethus decoratus*. *Lepidoptera* were conspicuous by their absence.

Leaving Churchhill we drove on down to Maghery. Here our great object was the capture of *Dyschirius obscurus*, and accordingly Mrs. Johnson and myself were soon down on our hands and knees on the sand. *Bledius subterraneus* was pretty plentiful, but we seemed about to be disappointed in our hopes of *Dyschirius*, when Mrs. Johnson announced the capture of one, and shortly afterwards her efforts were rewarded by a second specimen, but more we could not get. Besides those mentioned we took a single specimen of *Anisotoma nigrita*. A few days later we went over to Tynan, partly on a botanical quest, but Mrs. Johnson discovered a very large colony of *Bledius fracticornis* on the canal bank, and we had quite an exciting time picking them out of their burrows. Along with them were a few *Bembidium femoratum*.

Early in October I had occasion to go to Co. Sligo, and on the 4th, when driving from Skreen to Ballysodare, I noticed flying along the roadside *Pararge Aegeria*, *P. Megæra*, and *Vanessa urticae*. The day was remarkably fine and the sun very strong, and butterflies seemed as lively as in July. Sugar I found a hopeless failure; I put it out regularly in my garden, but got nothing save on October 13th, when several *Phlogophora meticulosa* condescended to partake of the sweets. October was a very fine month, and on the 22nd, when out walking, I saw four *Pararge Megæra* and one very fresh looking *Vanessa urticae* flying in the sunshine by the roadside. In spite, however, of the fine weather *Lepidoptera* were very scarce, and in default of the imagines we devoted ourselves to the capture of larvæ and digging for pupæ, in which pursuits we found the unfavourable nature of the summer against us, pupæ in particular required a large amount of patience and a good deal of muscular exercise.

I have not been able to turn up *Pselaphus dresdensis* again. There have been some floods in Mullinure, but they were quite unproductive of beetles; however, the Christmas holidays are at hand, and I shall hope to meet my Pselaphid friend once more.

Armagh : December 10th, 1894.

NOTES ON TWO BRITISH SPECIES OF *BOMBUS*.

BY EDWARD SAUNDERS, F.L.S.

BOMBUS CULLUMANUS, Kirby.

This species should be restored to our list; in my Synopsis (Trans. Ent. Soc. Lond., 1884, p. 241) I considered it to be a variety of *soroënsis*, Fab., following the views of F. Smith, in the First Edition of his Bees of Great Britain; in his Second Edition, however, he treats *Cullumanus* as distinct. On the continent Schmiedeknecht and Hoffer have considered it as a variety of *soroënsis*, Thomson and Handlirsch as distinct. The Kirbyan type, which is a ♂, is not in very good condition, and at the time when I was writing my Synopsis I was satisfied that it was only a specimen of the var. *Proteus*, of *soroënsis*. On redescribing our *Bombi* lately, I examined the type very carefully, and saw at once that my former determination was wrong: the more shortly haired and less basally constricted posterior metatarsi distinguishing it easily from *soroënsis*; in these respects it more closely resembles *pratorum*, from which it is somewhat difficult to separate by external characters, the two species being exceedingly

alike in coloration. Mr. Waterhouse very kindly came to my assistance, and offered to extract the armature of the type specimen; this done, *Cullumanus* revealed itself at once as abundantly distinct from any other British species, quite justifying Thomson's and Smith's views of its validity. On consulting Handlirsch's Hummel-Studien (Ann. des K. K. Naturh. Hofmuseums, vol. vi, p. 451 [1891]), I find a good figure of the armature closely resembling the figure accompanying this, which has been carefully prepared from the type specimen under the supervision of Mr. Waterhouse.

Cullumanus may be distinguished from *pratorum*, its nearest ally, by the following characters:—

♂. Abdomen formed more as in *lapidarius*, i. e., rather more parallel-sided than in *pratorum*, the pubescence shorter and denser, the difference between the species in this respect being much the same as between *hortorum* and *Latreillellus* or *agrorum* and *venustus*, the pale hairs are of a less brilliant yellow, the 5th joint of the antennæ is much longer than the 4th, and three-quarters as long as the 3rd and 4th together, and the basal joints of the flagellum are slightly arcuate; for the shape of the armature, see figure.

♀. Very like that sex of *pratorum*, but with the face squarer, i. e., with the outer margins of the cheeks between the eyes and mandibles more parallel to each other, and the abdominal black band confined to the 3rd segment; I have not seen a worker. From the red-tailed variety of *soroënsis* (which has not occurred in Britain), the ♀ may be known by the longer 3rd joint of the antennæ, which is nearly as long as the two following together.



The only recorded localities are Southend, Brighton Downs, Bristol, and Suffolk.

BOMBUS NIVALIS, Smith, nec Dahlb.

The species described by Smith under this name is clearly only a variety of *Scrimshiranus*. The Rev. F. D. Morice caught a good series of specimens last September (cf. Ent. Mo. Mag., 2nd ser., vol. v, p. 259), and, although differing from normal *Scrimshiranus* in the black haired tibix, and the yellowish, not white, haired apex of the abdomen, they are structurally, so far as I can see, identical with that species, and the armature of the ♂ also entirely bears out their identity. *Nivalis* must, therefore, disappear from our list as a species. The true *nivalis*, Dahlb., is a very large species, equalling *hortorum*, &c., in size.

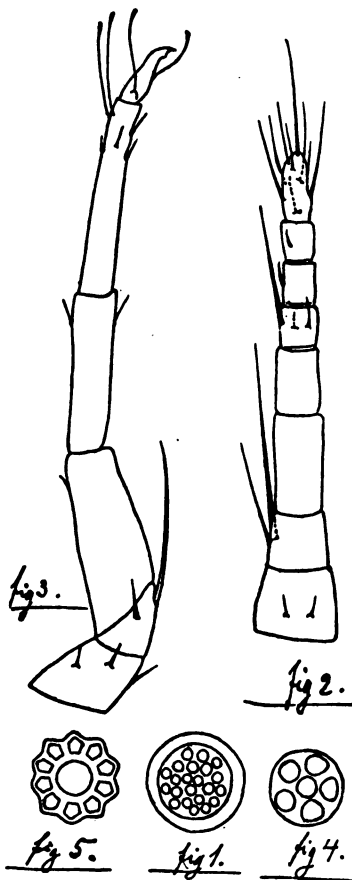
27, Granville Park, Lewisham :
January 4th, 1895.

DESCRIPTION OF A NEW SPECIES OF *LECANIUM* FROM BOHEMIA.

BY KAREL ŠULC.

LECANIUM DOUGLASI.

♀ adult. Scale large, high, almost circular, sometimes highest anteriorly; dorsum smooth, on the periphery distinctly dimpled, yellowish-brown, with narrow



piceous stripes; one stripe median, the others, about ten in number, radial, corresponding with segments of the body. The insect itself piceous. Scales full of eggs, Kermes-like, covered with spots of glass-like matter, so as to appear to be powdered, which matter arises from strainer-like, circular, glandular openings (fig. 1). Antennæ stout, long, 8-jointed (fig. 2), the 1st joint large, massive; the 2nd narrower than the 1st, and a little shorter; 3rd longest, as long as the 1st and 2nd together; 4th a little longer than the 2nd, in length equal to the 8th; 5th, 6th, and 7th in length equal, shortest; two hairs on the 1st; two on the 2nd, one of which is strong, and reaches to the base of the 5th joint; none on the 3rd and 4th; three on the 5th, one of which surpasses the 7th; one on 6th and 7th; and about ten on the 8th. Legs (fig. 3) very long, not stout in proportion to the body; coxa with three, trochanter with two hairs; femur and tibia in length equal each at distal end with one or two hairs; tarsus monomerous, little longer than tibia, with four distal hairs; claw strong, with a small tooth; digitules of the tarsus and claw long, filiform, dilated at the extremity. Stigmata in two pairs, one pair on meso- and one on metathorax, with a few glandular

openings;—some are also placed on the limit of meso- and metathorax. They are circular, with six equal pores; one of which is in the middle, and five on the periphery (fig. 4); whereas on the ventral segments in similar glandular openings, the central pore is large, and the pores on the periphery are ten in number, and five-angulated (fig. 5). Margin with equidistant, conical, spine-shaped, glandular ducts. Anal cleft deep; anal ring with six long hairs; anal scales triangular, with four short spines. Length 7 mm.; breadth, 6 mm.; height, 5 mm.

Newly-hatched larvæ.—Yellowish, oblong, rounded anteriorly, narrower pos-

teriorly; pro- and mesothorax very large, metathorax narrow; abdomen formed of seven segments, anal scales triangular, with three hairs, of which the apical is the longest; anal cleft not deep, anal aperture with six long hairs; on the periphery the head has eight, prothorax three, mesothorax two, metathorax and following abdominal segments each has one short hair, except the last and penultimate segment, which have each two hairs; for the rest, on the dorsal side, each segment on the right and on the left from the median line is furnished with hairs. On the limit of pro- and mesothorax, and meso- and metathorax is a group of three conical ducts. Legs as in adult female. Antennæ 6-jointed: 1st joint large, longer than the 2nd; 2nd, 4th, and 5th in length equal; 3rd longest, as long as the 6th; three hairs on the 1st; two on 2nd; two on 3rd, very long; one on 4th and 5th; and about ten on 6th.

Larva, second stage.—Large, elliptical, brownish; margin with many conical, spine-shaped, glandular ducts. Legs as in mature female. Antennæ of seven joints only: the 1st large; the 2nd, 4th, 5th, and 6th shorter, in length equal; the 3rd longest, the last a little shorter; two hairs on 1st; two very long on 2nd; 3rd hairless; three on 4th; one on 5th and 6th; and about ten on 7th. Anal cleft, aperture, and scales as in adult female. Length, 1.5 mm.; breadth, 0.6 mm.

Perfect male unknown.

Male scale very long and broad.

Habitat: Mosoly, near Prague, Central Bohemia, on *Betula alba*.

Last May I found female scales just adult, placed on the stem and twigs; in June they were full of eggs, from which in some days after proceeded newly-hatched larvæ. In November last I was so happy as to find in the same locality, and on the same birch tree, examples of the second larva-stage, and I observed that during the development antennæ and anal scales are altered, the legs remaining always of the same form.

Mr. J. W. Douglas, in his "Note," No. 20 (Ent. Mo. Mag., 1891, p. 96), on *Pulvinaria betulæ*, has enumerated all the species from *Betula alba* mentioned by authors, and there is yet apparently no *Lecanium* described as coming from that tree, and no other known species agrees with my specimens.

Deeming, consequently, that I have a new species before me, I sent two examples to Mr. Douglas, and asked his opinion. He kindly wrote to me:—" * * a *Lecanium* apparently, but it is quite new to me; I know no *Lecanium* on *Betula*, and I cannot find that this species has been described."

My private opinion, sustained by such authority, is consequently true, and I have the honour to dedicate this species to Mr. Douglas, who has very much aided in determining it.

Prague: December 17th, 1894.

ON TWO APPARENTLY UNDESCRIBED BRITISH SPECIES OF
ANDRENIDÆ.

BY R. C. L. PERKINS, M. A.

The two following species of *Andrenidæ* appear to be undescribed, but probably exist in various collections mixed with other allied species.

ANDRENA AMBIGUA, *sp. n.*

♂—face with pale hairs, generally more or less mixed with black ones towards the sides, those on the clypeus nearly white. Apex of labrum hardly emarginate, mandibles simple at the base. Antennæ with the 2nd and 3rd joints of the flagellum subequal in length. Thorax with brown hairs, paler at the sides and on the meta-thorax. Basal segment of abdomen and the base of the 2nd with long fulvous hairs, the rest with sparser decumbent pubescence; the segments punctured at the base, smooth, and shining along their apical margins; legs with pale hairs; abdomen beneath with long suberect pubescence, the apical margins of the segments ciliated with pale hairs.

♀—face with black pubescence, labrum hardly emarginate, clypeus somewhat sparsely irregularly punctured, thorax as in the ♂ but more densely clothed; two basal segments with bright fulvous hairs, 3rd and 4th with paler and more decumbent ones, apical segments with black hairs; dorsal valve of 6th segment very finely and closely punctured, depressed along the margins; scopæ dark above.

This species is very closely allied to *varians*, Rossi, and *helvola*, Linn., being somewhat intermediate between these species. It may, however, be easily distinguished from the former by the greater length of the 3rd joint of the flagellum in the ♂, which, in *varians*, is much shorter than the 2nd, and by the less closely and regularly punctured clypeus of the ♀; from the latter it may be known by the simple mandibles (without a tooth at the base) of the ♂, and the black-haired face of the ♀.

I caught both sexes of this species on Dartmoor, near Moreton-Hampstead, on May 31st, 1891, including a pair *in coitû*. A single ♂ was sent to me by Mr. C. G. Barrett from King's Lynn, Norfolk, in 1889, and placed amongst my series of *varians*.

HALICTUS ANGUSTICEPS, *sp. n.*

Almost identical in form and sculpture with *H. punctatissimus*, Schenck, having the face similarly formed, much longer than wide.

♂—black, apex of clypeus, labrum and mandibles (except at extreme base and apex) yellow; flagellum pale beneath; tarsi testaceous, generally more or less obscure. Head, thorax and abdomen with grey pubescence; head above the antennæ closely and distinctly punctured, decidedly more largely than in *punctatissimus*, and the surface shining between the punctures; mesothorax also rather more largely punctured and more shining. Abdomen distinctly and evenly punctured all over, even to its extreme base. Genitalia with the dorsal surface of the stipites at

their apex prolonged into a process, bent downwards and clothed with short hairs; from their lower surface is given off a reflexed expanded membrane, convexo-concave, and somewhat fan shaped. A small portion of these membranes appears on either side of the stipites in a dorsal view of the armature,

May be distinguished at once from *H. punctatissimus* by the colour of the tarsi which are not at all yellow, and the very different form of the genital armature. The ♀, which I have never found, would probably be very similar to that sex of the above-mentioned species.

Hab. : Sidmouth, South Devon, where I took a number of specimens in August, 1886. I had previously found it at Weymouth some years before that date.

Cambridge: *January*, 1895.

PRE-OCCUPIED NAMES AND GENERA IN THE MICRO-LEPIDOPTERA.

BY THE RIGHT HON. LORD WALSLINGHAM, M.A., LL.D., F.R.S., &c.

Referring to Mr. Meyrick's note (Ent. Mo. Mag., XXX, 230 [1894]), I had not overlooked the fact that in *profugella* and others of the genus veins 6 and 7 of the hind-wings are from a point or stalked; indeed, it was pointed out that this was the case by Heinemann (Schm. Deutsch. Tin., 405 [1877]) in *silerinella* and *profugella*, but for the separation of my genus *Cataplectica*, as stated at the time, I preferred to rely especially upon the difference in the neururation of the fore-wing, in which veins 7 and 8 arise from a common stem, not wishing to express an opinion as to the value of the character presented in the hind-wings.

I am obliged to Mr. Meyrick for reminding me that the name *Heydenia* is pre-occupied; I had a note to that effect, but purposely postponed drawing attention to this until I could send up for execution a very considerable number of its companions among the genera of *Micro-Lepidoptera*.

To make the list more complete, I have included those to which Mr. Meyrick has drawn attention.

The list is in three columns, of which the first contains names pre-occupied, or habitually ascribed to wrong authorship; the second and third giving the reasons in each case why such names should not be used.

Where a name is found in the third column, this name should replace that used in the first.

Where no name appears in the third column it does not necessarily follow that a new name should be given—some hetero-

typical genus may be already in existence which may be restricted to do duty for the pre-occupied name, if the genus is found to be a valid one; but I have not found time at present to go into all the details necessary to determine such cases.

Where generic names are placed in the first column merely because in Staudinger and Wocke's catalogue they are not attributed to the original founder, or because they have been misspelt, they have been indicated by italics.

Although I have no predilection for this branch of Entomological study, which savours too much of historical research, it can scarcely be avoided if our lists are no longer to convey incorrect information to those who have occasion to consult the present nomenclature. No attempt is made here to exhaust the subject, further instances could be adduced, and these notes are compiled with the object of urging others to supplement them from time to time. For the same reason I am not now suggesting names to replace those wrongly in use. This I shall be prepared to do at some future date, unless the deficiency should be supplied by other workers before my lists are completed.

GENUS.	PRE-OCCUPIED BY	NOTES.
<i>Aciptilia</i> , Hb., 1826	.....	=<i>Pterophorus</i> , Geoffr., 1762.
<i>Alucita</i> , Stgr. Cat.	.....	=<i>Orneodes</i> , Ltr., 1796 (Meyr.).
<i>Amblyptilia</i> , Hb., 1826	.....	=<i>Platyptilia</i> , Hb., 1826 (Meyr.).
<i>Anacamptis</i> , Stgr. Cat.	..... Crt., 1827, Lp.	(does not contain Curtis' type).
<i>Aphelia</i> , Stph., 1829	..... Hb., 1826, Lp.	= <i>Bactra</i> , Stph., 1834.
<i>Argyritis</i> , Hein., 1870	..... Hb., 1826, Lp.	.....
<i>Aspidisca</i> , Clem., 1860	..... Ehr., 1830, Polyg.	= <i>Coptodisca</i> , Wlsm., nom. n. (type, <i>splendoriferella</i> , Clem.).
<i>Aspis</i> , Tr., 1829	..... Laur., 1768, Rept.	= <i>Notocelia</i> , Hb., 1826.
<i>Blabophanes</i> , Z., 1852	.....	=<i>Monopis</i> , Hb., 1826.
<i>Blepharocera</i> , Chamb., 1877	..... <i>Blepharicera</i> , Macq., 1843, Dipt.	.....
<i>Bohemannia</i> , Stn., 1859	..... Stål, 1855, Hem.	.....
<i>Brachmia</i> , Hein., 1870	..... Hb., 1826, Lp.	(does not contain Hübner's types).
<i>Butalis</i> , Tr., 1833	..... Boie, 1826, Aves	= <i>Galanthia</i> , Hb., 1826 (Snell).
<i>Cacochroa</i> , Hein., 1870	..... <i>Cacochroea</i> , Ld., 1859, Lp.	(does not contain Lederer's type).
<i>Cacochroa</i> , Stgr. Cat., p. 252	..... (laps. cal.)	= <i>Cacochroea</i> , Ld., 1859.
<i>Ceratophora</i> , Hein., 1870	..... Gray, 1840, Rept.	.....
<i>Chimabacche</i> , Z., 1839	.....	=<i>Chimabacche</i> , Hb., 1826.
<i>Chauliodus</i> , Tr., 1833	..... Schn., 1801, Pisc., &c.	= <i>Epermenia</i> , Hb., 1826 (Meyr.).
<i>Cladodes</i> , Hein., 1870	..... Solier, 1849, Col.	= <i>Eudodacles</i> , Snell., 1889.
<i>Cleodora</i> , Crt., 1837	..... Pér. Les., 1810, Moll.	= <i>Paltodora</i> , Meyr., 1894.
<i>Cnemidophorus</i> , Wlgrn., 1859	..... pre-occupied in <i>Lacertilia</i> , Wlgrn., teste=	<i>Eucnemidophorus</i> , Wlgrn., 1881, = <i>Platyptilia</i> , Hb., 1826 (Meyr.).
<i>Coleophora</i> , Z., 1839	.....	=<i>Coleophora</i> , Hb., Tent. (c. 1811).
<i>Crasimetus</i> , Meyr., 1890	.....	=<i>Pselnophorus</i> , Wlgrn., 1881.
<i>Cryptopeges</i> , Btl., 1882	.....	=<i>Chezala</i> , Wkr., 1864.
<i>Dactylota</i> , Snell., 1876	..... Brandt, 1835, Echin.	= <i>Didactylota</i> , Wlsm., 1892.

GENUS.	PRE-OCCUPIED BY	NOTES.
Doryphora, Hein., 1870	Ill., 1807, Col.	=Xystophora, Hein. and Wk., 1877.
Ergatis, Hein., 1870		=Aristotelia, Hb., 1826.
Eriphia, Chamb., 1875	Ltr., 1817, Crust.	
Euchaetes, Meyr., 1883	Dej., 1834, Col., &c.	
Euchromia, Stph., 1829	Hb., 1826, Lp.	
Eudemis, Stgr. Cat.	(nec. Hb.)	=Polychrosis, Rag., 1894.
Eupselia, Meyr., 1880	Eupsilia, Hb., 1826, Lp.	
Euteles, Hein., 1870	Dej., 1834, Col.	
Evagora, Clem., 1860	Pér. Les., 1809, Acal., &c.	
Gelechia, Z., 1839		=Gelechia, Hb., 1826.
Gonia, Hein., 1870	Meig., 1826, Dipt.	
Gracilaria, Z., 1839		=Gracilaria, Hw., 1812.
Grapholita, Tr., 1829	} Grapholitha, Hb., 1826, Lp.	(does not contain Hübner's types).
Grapholitha, Tr., 1830		
Heterognomon, Ld., 1859		=Tortrix, L., 1758.
Heusimene, Stph., 1834	(laps. cal.)	=Hemimene, Hb., 1826.
Heydenia, Hfm., 1868	Forst., 1856, Hym.	
Hieropola, Meyr., 1884		=Tisobarica, Wkr., 1864.
Hoplitica, Meyr., 1884		=Tisobarica, Wkr., 1864.
Hypatima, H.-S., 1847		=Hypatima, Hb., 1826.
Hyponomeuta, Z., 1844		=Yponomeuta, Ltr., 1796, =Hyponomeuta, Sdf., 1837.
Idiographis, Ld., 1859		=Hysterosia, Stph., 1852.
Lamprotes, Hein., 1870	Walk., 1829, Hym., &c.	
Latometus, Btl., 1882	Ericks. Col. (teste Agassiz)	=Antidica, Meyr., 1884.
Leioptilus, Wlgrn., 1859	Lioptilus, Cab., 1850, Aves	=Alucita, L., 1758 (Meyr.).
Leistarcha, Meyr., 1884		=Tigava, Wkr., 1864.
Lithocolletis, Z., 1839		=Lithocolletis, Hb., 1826.
Lophoderus, Stph., 1829		=Eulia, Hb., 1826.
Lozotaenia, H.-S., 1848		=Lozotaenia, Stph., 1829.
Mesophleps, H.-S., 1847		=Mesophelps, Hb., 1826.
Mimæseoptilus, Wlgrn., 1859		=Stenoptilia, Hb., 1826 (Meyr.).
Myrmecocela, Stgr. Cat.	(laps. cal.)	=Myrmecozela, Z., 1852.
Nannodia, Hein., 1870		=Chrysopora, Clem., 1860.
Neda, Chamb., 1874	Muls., 1861, Col.	
Oecophora, Z., 1839		=Oecophora, Ltr., 1796.
Oematophorus, Wlgrn., 1859		=Alucita, L., 1758 (Meyr.).
Oenophthira, Dp., 1843		=Oenectra, Gn., 1845 (the date of Oenophthira, Dp., is 1846, teste Stph. List Br. An. B. M., X, 9 [1852]).
Oistophora, Meyr., 1882		=Enopa, Wkr., 1866.
Onectra, Stgr. Cat.	(laps. cal.)	=Oenectra, Gn., 1845.
Ornix, Z., 1839		=Ornix, Tr., 1833.
Orophia, Meyr., 1883	Hb., 1826, Lp.	
Palparia, Wing, 1849	Hw., 1812, Lp.	=Torticopsia, Newm., 1856.
Pandemis, Hb., 1826	Pandemos, Hb., 1826, Lp.	
Peltophora, Meyr., 1884	Burm., 1835, Hem.	=Chezala, Wkr., 1864.
Peronea, Crt., 1824	Peronaea, Poli, 1795, Moll.	
Petalea, Stgr. Cat.	(laps. cal.)	=Pelatea, Gn., 1845.
Phetusa, Chamb., 1875	Wagl., 1832, Aves	
Phigalia, Chamb., 1875	Dp., 1829, Lp.	

GENUS.	PRE-OCCUPIED BY	NOTES.
<i>Phoxopteryx</i> , Stgr. Cat.		=Phoxopteria, Tr., 1829, =Ancyliis, Hb., 1826 (Rag.).
Phthorobastis, Ld., 1859		=Pammene, Hb., 1826 (Rag.).
Pœcilia, Hein., 1870	Bloch., Schneid., 1801, Pisc., &c.	=Stenolechia, Meyr., 1894.
Protomacha, Meyr., 1885		=Zacorus, Btl., 1882.
Piloithrix, Wk., 1871	Redt., 1858, Col.	=Penestoglossa, F. and R., 1875.
<i>Pterophorus</i> , Wlgrn., 1859		=Alucita, L., 1758 (Meyr.).
<i>Rhyacionia</i> , H.-S., 1848		=Rhyacionia, Hb., 1826.
Ripismia, Wk., 1877		=Millieria, Rag., 1874.
Sagaritis, Chamb., 1872	Billb., 1820, Col., &c.	
Sciaphila, Tr., 1829		=Cnephasia, Crt., 1826.
Semicosma, Meyr., 1883		=Izatha, Wkr., 1864.
Staintonia, Stgr., 1859		=Eretmocera, Z., 1853.
<i>Steganoptycha</i> , Stgr. Cat.	(nec. Stph.)	Stephens, Ill., iv, 105, derives the name from Stego (tego) ptyx (plicæ), and says: "The males of this genus, at least in the typical species, are well characterized by the peculiar process of hairs, which, during repose, lies concealed beneath the reflected base of the anterior-wings." Heinemann says: "bei dem Manne ohne Umschlag"!!
Tachyptilia, Hein., 1870		=Anacampsis, Crt., 1827 (type <i>populella</i> , Cl.).
Teleia, Hein., 1870	Hb., 1826, Lp.	(does not contain Hübner's types).
<i>Tinea</i> , Z., 1839		=Tinea, L., 1758.
Topeutis, Hb., 1826		=Chilo, Zk. (teste Stph. [1834], this very proper restriction antedates Zeller's [1839], and the genus must cease to be employed in the <i>Tineidæ</i>).
<i>Urodeta</i> , Stgr. Cat.	(laps. cal.)	=Urodeta, Stn., 1869.

Merton Hall, Thetford :
January, 1895.

NOTES ON SOME BUTTERFLIES OF TENERIFE (PART I).

BY SIDNEY CROMPTON.

The Lepidopterous fauna of most oceanic islands, whether situated in tropical or temperate latitudes, with the exception, perhaps, of the islands of the Malay Archipelago, found by Wallace to be rich in insects, is very poor. The Canaries are what are called continental islands, *i. e.*, islands which have, in some remote geological period, belonged to an adjacent continent, in this case to the great continent of West Africa. Lanzarote, one of the Canary group, and the most oriental, is distant only twenty miles from the African coast.

The whole aggregate area of the seven islands yields only thirty-four *Macros* and sixty-three *Micros*. Our information as to these is still far from complete and satisfactory, despite the labours of Rebel,

Holt-White, Christ, Blachier, Alphéraky, Christy, and Bory. Our most reliable sources of information on Canarian *Lepidoptera* are Dr. Rebel's two brochures, "Zur Lepidopterenfauna der Canaren," and his "Beitrag zur Micro-Lepidopterenfauna des Canarischen Archipels," in the "Annalen des K. K. Naturhistorischen Hofmuseums," and Mrs. Holt-White's popular account of the "Butterflies and Moths of Teneriffe."

The following is a list of the *Rhopalocera*, from Rebel's pamphlet :

<i>Pieris cheiranthi</i> , Hb.	<i>Vanessa urticae</i> , L.
<i>P. rapæ</i> , L.	<i>Pyrameis Atalanta</i> , L.
<i>P. Daplidice</i> , L.	<i>P. indica</i> , Herbst, var. <i>Vulcania</i> , God.
<i>Anthocharis Belemia</i> , Esp.,	<i>P. cardui</i> , L.
var. <i>Glauce</i> , Hb.	<i>P. virginensis</i> , Drury.
<i>A. Charlonia</i> , Donz.	<i>Argynnis Lathonia</i> , L.
<i>Colias Edusa</i> , F., et ab. <i>Helice</i> , Hb.	<i>A. Maja</i> , Cr.
<i>Gonopteryx Cleobule</i> , Hb.	<i>Danaicla Chrysippus</i> , L.
<i>Polyommatus Phlæas</i> , L.	<i>D. Plexippus</i> , L.
<i>Lycæna batiens</i> .	<i>Satyrus Wyssii</i> , Christ.
<i>L. Webbianus</i> , Brullé.	<i>Pararge Ægeria</i> , L., var. <i>xiphioides</i> , Stgn.
<i>L. Lysimon</i> , Hb.	<i>Epinephele Jurtina</i> , L.,
<i>L. Astrarche</i> , Bgstr.	var. <i>fortunata</i> , Alph.
<i>L. Icarus</i> , Rott., var. <i>Celina</i> , Aust.	<i>Thymelicus Christi</i> , Rbl.

The following is Mrs. Holt-White's list (pp. 62—3), of which twenty are illustrated in her book. Only two butterflies, *i. e.*, *P. cheiranthi* and *L. Webbianus*, are peculiar to Tenerife.

1. <i>Pieris cheiranthi</i> .	15. <i>Thecla rubi</i> .
2. " <i>Wollastoni</i> .	16. <i>Danais Plexippus</i> (formerly <i>Archippus</i>)
3. " <i>rapæ</i> .	17. " <i>Chrysippus</i> .
4. " <i>Daplidice</i> .	18. " <i>Alcippoides</i> .
5. <i>Euchloë Charlonia</i> .	19. " <i>Dorippus</i> .
6. <i>Aporia cratægi</i> .	20. <i>Argynnis Maia</i> (Cram.) or <i>Pandora</i> .
7. <i>Rhodocera Cleobule</i> .	21. " <i>Lathonia</i> .
8. <i>Colias Edusa</i> .	22. <i>Pyrameis</i> (formerly <i>Vanessa</i>) <i>Atalanta</i> .
9. " " var. <i>Helice</i> .	23. " <i>Callirhoë</i> or <i>Vulcania</i> .
10. <i>Lycæna batiens</i> .	24. " <i>cardui</i> .
11. " <i>Webbiana</i> .	25. " " var. <i>Huntera</i> .
12. " <i>Lysimon</i> .	26. <i>Pararge xiphioides</i> .
13. " <i>Astrarche</i> , var. <i>æstiva</i> .	27. <i>Epinephele Hispulla</i> or <i>fortunata</i> , Alph.
14. <i>Polyommatus</i> (or <i>Chrysophanus</i>)	28. <i>Hipparchia Statilinus</i> .
<i>Phlæas</i> .	29. <i>Hesperia Actæon</i> .

Of these, thirteen are represented in England, namely: Nos. 3, 4, 6, 8, 9, 10, 14, 15, 16, 21, 22, 24, 29.

Pieris cheiranthi is a large cream-white butterfly; ♀ having a long uneven black patch on the surface of the fore-wings, which is

lacking in the ♂. The upper-surface of both ♂ and ♀ is of the same cream-white tint, with black apical patches on the fore-wings. The insect measures about three inches across. I have not bred these myself, but Mrs. Holt-White says the larvæ are great victims to an *Ichneumon* fly.

There is an allied species to the above, namely, *P. Wollastoni*, which was catalogued as Canarian for the first time by Mrs. Holt-White. The authoress caught some specimens in Tenerife, at an altitude of about 500 feet above the sea.

The other butterfly peculiar to Tenerife, *Lycæna Webbianus*, which is found among the *Erica arborea*, *Cytisus*, and *Adenocarpus viscosus*, is locally known among collectors in Tenerife as "the peak blue," as it is found in great numbers on the Cañadas, and I myself have captured specimens there, the insect being very numerous, and even settling on our hands and clothes. It is also found in "barrancas," or ravines, on the south of the island, and my colleague, Mr. H. Mardly Douglas, netted two specimens near the Mercedes Wood, La Laguna, July 8th of this year. They are now in my cabinet.

This insect is well described by Mrs. Holt-White, pp. 39—40, and on plate i, figs. 7 and 8, one illustrated the ♂ upper-side and ♀ under-side. The ♀ is of a browner colour on the upper-surface than the ♂, the ♂ being a bright, iridescent blue.

In my next paper I propose to point out the chief points of divarication between examples of those species which are common to Tenerife and to England.

Salamanca, Santa Cruz, Tenerife :
December, 1894.

RELAXING AND SETTING INSECTS.

BY W. FARREN, F.E.S.

During the last three months I have relaxed and set more than 1000 moths, and my experiences may be of interest. I started with an idea that the orthodox method of leaving the specimens in a closed vessel containing wet sand was not altogether satisfactory, and having in mind a suggestion made by my father some years ago, that a fine jet of steam applied to the under-surface, at the junction of the wings with the thorax, would be a good method of relaxing large specimens, I had a finely bored gas-fitter's blowpipe soldered into the lid of a small saucepan, making a miniature steam kettle. I found it necessary to have the lid of the saucepan soldered all round, and a small hole with a screw cap, made for putting in the water, as the steam escaped so freely from the lid as to prevent its coming through the fine hole of the blowpipe.

The most convenient way of using it is to have a gas or spirit stove on the table, then set the saucepan half filled with water to boil; a gas stove is better than spirit, as when the water boils the flame can be regulated to keep it just "on the boil." The insect to be relaxed should be held not too near the blowpipe, as the force of the steam may be too strong, nor too far off, as the larger volume of steam wets the wings; any one trying it will soon find out the best position, distance, &c. The time taken varies according to the age of the specimens, and method of killing; ammonia-killed specimens are much easier than those killed with cyanide.

I was naturally much interested in reading of the successful use of "wood naphtha," related (*ante* p. 21) by Dr. Knaggs, although I had at that time already tested it for myself, the method having been expounded by Mr. Mutch on page 305 of the "Record" for 1894.

I agree with Dr. Knaggs that it is a very good method of relaxing, *but not that it obviates the use of watery vapour*. Insects (*Lepidoptera*, at any rate) cannot be safely handled and set without *all parts, wings, legs, &c., having been softened to a certain extent*, to attain which condition the specimens must be put into the relaxing pot, and left a certain time, depending on their condition, age and size, before any attempt be made to thoroughly relax them by the application of either "wood naphtha" or "steam."

Attempt to set a moth, for instance, a Geometer of the size of *Boarmia repandata*, which has simply had the wings loosened by "wood naphtha," and the almost certain result will be splitting of wings, and breaking off of legs and antennæ.

The moths I have been relaxing and setting mentioned above are of various sizes, from that of British *Scopariæ* to the largest *Sphinx*, and the following, after much experimenting, I find to be the best means of relaxing the different sizes:—most specimens, such as *Scopariæ*, the flimsiest *Pyræles*, and small *Geometræ*, are quite ready to set after being in the relaxing pot about twelve hours, and are undoubtedly more fit to handle and set, relaxed this way, than by any other method. The relaxing pot I used is a very good one, procured for me by Dr. Sharp. It is a round glass pot, about ten inches in diameter and five inches deep, covered with a piece of plate glass; there is a small hole a quarter of an inch in diameter drilled in this cover, which is most necessary, as it allows the ingress of air, which prevents the wings from becoming too wet. To the two inches of wet sand should be added a few drops of carbolic acid, not too much, as I fancy it retards relaxation; the finer the sand the better, as it forms a solid bed for pinning the insects on to. Care should be taken not to allow the wings to touch the wet sand.

For all larger moths, any in fact that are not sufficiently relaxed in twelve hours, steaming as described above, or the application of wood naphtha as in the article by Dr. Knaggs already referred to, is advisable. I have not tried wood naphtha on large hawk-moths, but about three minutes' steaming after twelve hours in the relaxing pot renders them quite ready for setting.

The chief thing I would urge is—consider no moth fit to repin and set unless it has been relaxed in every part, which can only be done by using the relaxing pot; even when they have been finished off by steam or wood naphtha, return them to the relaxing pot until you can set them, as a very few minutes is sufficient to dry the wings and render them brittle.

Cambridge: January 7th, 1895.

Proposed Memorial to the late Dr. F. Buchanan White.—It has been suggested that many friends of the late Dr. F. Buchanan White would be glad to have an opportunity of contributing to a Permanent Memorial of one who was so widely known and respected. It is proposed to place a Mural Brass Tablet, at a cost of £20 or £25, in St. Ninian's Cathedral, where deceased regularly worshipped; it is also proposed to procure an enlarged Photograph, at a cost of about Five Guineas, to be hung in the Lecture Room of the Perthshire Society of Natural Science.

Any who wish to contribute to this Memorial may send subscriptions to either of the undersigned, by whom they will be gratefully acknowledged:—VINCENT L. ROBINSON, Dean of St. Andrew's, The Deanery, Perth; HENRY COATES, President of the Perthshire Society of Natural Science, Pitcullen House, Perth.

Platydesma asymmetricum and its allies.—In vol. xxix of this Magazine, p. 274, I described a remarkable species of *Platydesma* from Damma Island, and remarked that this was the only species of *Tenebrionidae* known to me with asymmetrical cephalic armature in the male sex. Since then two other allied forms possessing this peculiarity have come under my notice. One of these, *P. (Hoplocephala) inaequidens*, Fairm., a pair of which (found at Diego Suarez, Madagascar, by M. Ch. Alluaud, in 1893) has been given me by M. Fauvel, agrees with *P. asymmetricum*, Champ., in having the horn on the left side of the head. The other, *P. (Alphitophagus) subfascia*, Walk. [= *celeba*, Chev. (*Hoplocephala*), = *japanus*, Mars., Lewis (*Alphitophagus*), = *diversidens*, Fairm. (*Hoplocephala*)], for specimens of both sexes of which I am indebted to Mr. G. Lewis and M. A. Fauvel, is additionally interesting from the fact that the horn is placed on the right side of the head. As regards this last-mentioned species, Chevrolat and Marseul appear to have seen female specimens only, as no mention is made by them of the extraordinary armature of the head. The type of *P. subfascia*, Walker, which I have examined, is a male, but its principal characters are not noticed in his diagnosis. Fairmaire, however (Ann. Soc. Ent. Fr., 1893, p. 24), has described the male, but he has omitted to note that the horn is clothed with fulvous hairs at the tip, a character not possessed by either *P. inaequidens* or *P. asymmetricum*. *P. subfascia* is very widely distributed; it has been recorded from Ceylon, Cochin China, Sayer, Japan, and Celebes. *P. inaequidens* was originally described from the island of Nossi Bé. Mr. Lewis [Ann. and Mag. Nat. Hist. (6), xiii, p. 397] also notes the occurrence of the insect in Ceylon, but he does not describe the sexual characters from his additional material; and it has been found in the same locality by M. E. Simon in 1892, some of whose specimens have been given me by M. Fauvel. These insects are much better placed in *Platydesma*, with which they are connected by various intermediate forms, than in either *Alphitophagus*, Steph., or *Arrhenoplita*, Kirby (= *Hoplocephala*, Cast.).—G. C. CHAMPION, Horsell, Woking: December 6th, 1894.

The Aleuonota section of the genus Homalota.—The following remarks on the synonymy, &c., of the *Aleuonota* section of the genus *Homalota* have been communicated by M. Fauvel; they will form a supplement to those already published by me in this Magazine, cf. xxx, p. 135 (1894):—(1) *hypogaea*, Rey, = *gracilentia*, Er., according to the types in the collections of Aubé and v. Mayet. (2) *ocaleoides*, Bris., = *Kiesenwetteri*, Kr., Kraatz himself having compared the types. (3) the

six species of *Aleuonota* (four of which are British) may be grouped by their respective male characters:—

a.—Sixth dorsal segment of the abdomen simple...

aurantiaca, Fauv.; *atricapilla*, Rey; *gracilentia*, Er.

b.—Sixth dorsal segment of the abdomen unituberculate...

Kiesenwetteri, Kr.; *laviceps*, Bris.

c.—Sixth dorsal segment of the abdomen bituberculate...*egregia*, Rye.

M. Fauvel has also communicated a specimen of *A. Kiesenwetteri*, and remarks that the species will almost certainly be found in England; he has found it in various localities in France.—ID.

Nebria complanata and other *Coleoptera* at Tenby.—During the greater part of October last, H.M.S. "Northampton" was in Milford Haven; and Tenby being within easy reach, I spent three or four days very pleasantly in hunting for *Coleoptera* on the fine sand-hills to the westward of that very pretty little seaside town. *Nebria complanata*, which was one of my principal quests, turned up directly I looked for it, and in unexpected numbers, as I had hitherto supposed it to be quite a rarity at Tenby (*cf.* Ent. Mo. Mag., vol. xxii, p. 139). For about half a mile along the sandy beach it occurred under all sorts of articles—old clothes, pieces of matting, wood and tin, cut Marram-grass, and even pieces of newspaper—but it seemed to be strictly confined to the beach proper, as not a single specimen could be found more than a dozen yards above high-water mark. The beetle appears to be entirely nocturnal in its habits, and to seek shelter during the day under the first object which presents itself; as on my second visit, after an interval of two days, the same "traps" produced an even more plentiful supply than at first, and this was the case on subsequent occasions. When disturbed, it runs with great speed over the sand; and the dead and dismembered bodies of sundry examples, and the mutilated condition of a good many living ones, testified to its savage and cannibalistic nature.

Turning stones on the sand-hills yielded a single specimen of *Harpalus melancholicus* (of which rare species I obtained several on the Chesil Bank, in July last), in company with a rather large form of *H. anxius*, *Dichirotrichus obsoletus*, *Amara bifrons* and *ovata*, *Bembidium rufescens*, and *Calathus flavipes*, the last-mentioned being much the commonest Carabideous beetle present, and occurring in large numbers. *Helops pallidus* was by no means rare at the roots of various plants close to the shore, being often found buried several inches deep in the sand, in company with a very pale form of *Phaleria cadaverina*, strikingly different from the strongly-marked examples of this insect occurring at Whitsand Bay, near Plymouth. *Peylliodes marcida* abounded on its favourite *Cakile maritima*, and the little *Meligethes exilis* occurred freely in one spot in the yellow flowers of *Leontodon* (*Thrinicia*) *hirta*; *Bledius opacus* was met with, sparingly, in a damp spot, and *Aleochara lata*, in carrion. *Anomala Frischii*, *Carcinops minima*, *Saprinus rugifrons* and *maritimus*, and *Necrodes littoralis*, were found walking about on the bare sand; a few days previously I had met with the *Necrodes* in very large numbers, in a dead "Angler-fish" (*Lophius piscatorius*), on the beach at Holyhead. The very last beetle which I bottled was a rather large *Anisotoma*, which puzzled both Mr. Champion and myself for some time, but it proved eventually to be a ♀ *A. Triepkei*, Tenby being a new locality for this still rare species.

By sweeping in the lanes, &c., I could find nothing better than a solitary *Orobittis cyaneus*; and the only beetle at all worth mentioning, found on the shores of Milford Haven, was *Bledius unicoloris*.—JAMES J. WALKER, R.N., H.M.S. "Northampton," Chatham: January 18th, 1895.

Coleoptera at Bredon's Norton and Bredon Hill, Worcestershire.—During a visit to this locality (new to me) in September last (18th to 27th) I captured about 100 species of *Coleoptera*, exclusive of such as may be classed as "generally common." The following is a list of the species most deserving of notice:—*Blechnus maurus* (extremely abundant in fungus on an old tree stump—in my experience a unique habitat), *Homalota decipiens*, *H. liturata*, *H. perexigua* (in fungi), *Tachyusa concolor* (muddy bank of Avon, a new and unexpected record for the Midlands), *Prognatha quadricornis* (under elder bark, Bredon Hill), *Bryaxis hæmatia* (moss), *Euplectus Karsteni* (ash bark, Bredon Hill), *Dacne rufifrons* (ash bark), *Micropeplus staphylinoides* (with *B. maurus*, abundant), *Omosiphora limbata* (fungus), *Corticaria serrata* (under bark of ash, oak, &c.), *Litargus bifasciatus* (ash bark), *Onthophagus cænobita* (horse dung, bank of Avon), *Cis alni* (under elder bark, Bredon Hill), *Longitarsus flavicornis* (sweeping), *Erirrhinus festuæ* (in reeds, bank of Avon), *Ceuthorrhynchus marginatus* (sweeping), *Crioceris asparagi* (in asparagus beds near Alcester, new to me as a Midland species). Two species of *Hemiptera* occurred in fungus on an old stump, viz., *Berytus minor* and *Sehirus bicolor*.—W. G. BLATCH, Knowle, near Birmingham: January 7th, 1895.

Heliothis armigera, Hb., in East Dorset.—Last autumn whilst out shooting near Lytchett Matravers, in the neighbourhood of Wimborne, on September 10th, I had the good fortune to take a specimen (worn to a shadow, but still highly prized, as I had never before seen it alive) of the rare *Heliothis armigera* under the following circumstances. As we were walking in line through a field of seed clover I caught sight of a very pale *Noctua*, which at once reminded me of a much wasted *H. peltigera*, flying about in the bright sunshine; gradually working its way towards us, it (luckily for me) passed through the line, when, no longer able to resist the temptation, I hurriedly handed over my gun to a keeper, and at once gave chase, much to the amusement of my companions! My only available weapon of offence being an ordinary glass bottom box, I was sadly handicapped, and the chase proved a long one, for the moth kept hovering here and there, but darting off again at my approach. Seeing that it had no intention of surrendering at discretion, and getting at last just within striking distance, I held part of the box in either hand and took a desperate "shot" at it. Fortune favoured me, and the prize was mine! Although it is not an addition to the Dorset list, there are only four previous records of its occurrence in the county.—EUSTACE R. BANKES, The Rectory, Corfe Castle: January 10th, 1895.

Remarkable variety of Scoparia truncicolella, Stn.—Among some *Lepidoptera* lately received for identification from Mr. Louis B. Prout, of Dalston, was a beautiful variety of *Scoparia truncicolella*, taken by himself at sugar near Brockenhurst on August 2nd, 1894. This species seems, as a rule, to be one of the most constant of all the *Scopariæ* in colour and markings, and among the large numbers examined in

different collections I have hardly seen anything worthy of the term "variety." In the individual captured by Mr. Prout, for I which propose the varietal name *pallida*, the ground colour of the fore-wings is white, and at the base is a small patch of dark scales; the space between the first and second lines, containing the typical stigmata, is lightly peppered with black scales, and stands out conspicuously against the pale ground colour as a broad darker central fascia. The only other noticeable markings are the usual line of black dots, and the small, black, wedge-shaped spot at the extreme hind margin. This specimen, which is a ♀, and with which Mr. Prout has most generously enriched my collection, has particularly interested and delighted me, because, although its ground colour is not quite so pure a white as in those varieties, it is an exactly parallel form to *Sc. mercurella* var. *portlandica*, Dale, of which good figures will be found in Ent. Mo. Mag., v, pl. i, fig. 10, and in Leech's Brit. Pyral., pl. 15, fig. 5; to *Sc. dubitalis* var. *purbeckensis*, Banks (Proc. Dors. N. H. and A. F. Club, x, 202, pl., fig. 8; Ent. Mo. Mag., xxiii, 258); and to the grand nameless variety, figured in Entom., xiii, pl. 4, figs. 1 and 2, of *Sc. alpina*.—Id.: January 11th, 1895.

Another British example of Xanthia ocellaris.—I am asked by Mr. A. Wyndham Peach to record the occurrence of another specimen of *Xanthia ocellaris*, Bork., which was taken by Mr. F. Cannon, of Richmond, near Wimbledon, in October last. He found it sitting on a gas lamp, and did not recognise it at the time, so made no special search for others. This specimen is not of the dark form previously recorded (var. *lineago*), but of the light, bright, ordinary European type, and really is a very pretty specimen. Its apex is scarcely so much pointed as in the specimens previously secured, and it would undoubtedly pass muster as a brightly marked *A. gilvago*, were it not that the nervures beyond the middle of the fore-wings are distinctly white, and the round spot in the lower half of the renal stigma is also filled up with white.—CHAS. G. BARRETT, Nunhead: December, 1894.

The disappointing season of 1894.—The past season in this district (Reading) has been very disappointing, from an entomological point of view, although, during the early part of the season, many of the commonest species were very abundant, notably *Hybernia leucophaea*, of which many interesting forms were taken, some almost melanic, and others very pale. *Cymatophora flavicornis*, *Brephos Parthenias*, *Tephrosia punctularia*, *Micropteryx purpurella*, *M. semipurpurella*, *M. calihella*, *M. Sparmannella*, were all fairly abundant; *M. salopiella* was also taken on several occasions. Several of my friends also succeeded in taking *Endromis versicolor*; I saw it myself on two occasions, but did not take it. *Stauropus fagi* we did not take at all, although searched for on many occasions. During June I made several journeys to Basingstoke in search of *Sesia sphegiformis*, but only on one occasion did I succeed in taking it, and that a wet dull afternoon. A friend and I started searching the alders, and on the foliage and stems we managed to secure six between us, one pair of which I took *in cop.* between 3 and 4 o'clock in the afternoon; we also took a nice series of *S. formicaformis* in a small osier bed near by. Sugar has been a complete failure, the most common species being almost entirely absent; during July I sugared nightly for a fortnight for *Calymnia pyralina*, but

only took four. Autumn sugaring did not improve, for there was an almost entire absence of the usual autumn species, and the *Xanthia* failed altogether to put in an appearance.—A. H. HAMM, Hatherley Road, Reading : December, 1894.

Rare Diptera captured in 1894.—Although the season of 1894 was generally considered a bad one for insects, I was fortunate enough to take several good species of *Diptera*.

A nice series of the curious fly *Alophora hemiptera* was taken in Matley Bog, New Forest, in July.

The *Echinomyia* were well represented, as I captured five out of the six British species. *E. ursina*, Mg., occurred in swarms at Wyre Forest in March, and in April and May two specimens at Sutton Park. *E. ferox*, Pz., one from Wyre, August 5th. *E. lurida*, F. (1), and *grossa*, L., at the New Forest ; the last named being fairly common.

Cheilosia grossa and *flavicornis*, F., occurred together on the swallow blooms at Wyre and Sutton, this being the first record of *flavicornis* from the Midlands. A fine ♀ *C. chrysocoma*, Mg. (the third British record), fell to my lot at Seleley in May, also one *vulpina*, Mg., and half a dozen specimens of *Brachyopa bicolor*, Fln., from the same locality. One specimen of *C. soror*, Zett., was captured in my garden.

Orthoneura elegans, Mg., and *nobilis*, Fln. ; I met with these two species for the first time in Sutton Park.

A curious pale form of the common *Platychirus peltatus*, with the first pair of spots large and square, occurred at Painswick.

In spite of the almost sunless summer, some good *Syrphi* fell to my net. The principal ones being *triangulifer*, Zett., from Selsley (new to the list) ; *lineola*, Zett., five from Wyre ; *vittiger*, Zett., one from Sutton, this being the first time I have taken these three species ; *nitidicollis*, Mg., common at Wyre, and one from Sutton. Towards the end of August, I noticed some large *Syrphi* flying among pine trees (no doubt searching for *Aphides*) ; they turned out to be *pyrastri* and *selenitica*, and as I had not previously seen *selenitica* at Sutton, I worked hard for them. They were very difficult to capture, mostly keeping from ten to thirty feet from the ground ; however, I succeeded in getting a nice series of ten. Both species were also captured on palings in a semi-torpid state on October 14th, an exceptionally late date for *Syrphi*.

Didea alneti : I captured three specimens of this rarity, one at Sutton, the yellow form, and two at Wyre, the bands being a lovely pale blue.

In a field at Bournemouth I swept a ♂ of the pretty little *Pelecocera tricineta*, Mg., and at the same place on the shore took a pair of *Actora astum*, Mg., on jelly fish.

Arctophila mussitans was met with for the first time at Sutton, and I have one from Wyre, so we may now consider it a Midland insect.

On hawthorn bloom, in June, at Wyre, I was decidedly lucky in capturing a pair of *Criorrhina asilica*, Fln., and a ♂ *Pocota apiformis*, Schrk., both for the first time.

Five out of the seven British species of *Xylota* were taken, *segnis*, *sylovarum* and *abiens* at Sutton, *lenta* and *florum* (1) in July, at the New Forest, the last named being new to me ; at the same time and place *Dioctria Reinhardi* and *flavipes*

occurred, and one each of *Laphria marginata*, L., *Pamponerus germanicus*, L. *Myiolepta luteola* fell to my share; no doubt had the weather been fine several of these species would have been met with more freely.

Tabani have been scarce this season, the only one I met with commonly being *Chrysops quadratus*, in July, near Matley Bog: it was a nuisance, three or four settling on the hands at one time and drawing blood viciously.

Among *Tipulidæ*, *Idioptera pulchella*, Mg., with its curious semi-apterous ♀, was met with for the first time at Sutton. *Ephelia varinervis*, Zett., also turned up, but only one specimen.

Liogma glabrata and *Limnobia bifasciata* occurred in the New Forest, where also I captured a species of *Dicranomyia*, which seems undescribed. *Limnobia nigropunctata*, Schum.: this was common at Wyre Forest, and I afterwards took one at Sutton, also a ♂ *Xiphura atrata*. I have still a large number of insects to identify, but I think enough has been said to show that the year 1894 has not been a poor one for the Dipterist.—RALPH C. BEADLEY, Holly Bank, Sutton Coldfield: December, 1894.

Notes from New Zealand.—The present season here is one of the most backward we have experienced; plants and insects are fully a month behind the usual time. On September 30th, the weather being very hot, we decided to make the first entomological expedition of the season. The following were the only species of *Lepidoptera* taken:—one *Protosynema steropucha*, several *Simaethis combinatana*, one *Strepsicrates zopherana*, and a long series of a species of *Mallobathra*, which was very abundant, flying rapidly in the hot sunshine. Only two specimens of *Vanessa gonerilla* were seen, and a great paucity of insect life was noticeable generally. On October 10th I found a large number of galls on a small shrub of *Melicope simplex*; some of these resulted in a small Dipteran, apparently allied to *Cecidomyia*. I enclose specimens of both the gall and the Dipteran. I am also sending a series of *Stolotermes ruficeps*, including winged individuals, soldiers, workers, and gravid female. These were taken from a single nest in a rotten log during last May, and, judging from this, the winged individuals make their appearance at all seasons of the year.—G. V. HUDSON, Karori, Wellington, New Zealand: October 23rd, 1894.

[Mr. Austen, of the British Museum, identifies the *Cecidomyiid* as a species of the genus *Hormomyia*, Lw.—EDS.]

Review.

THE COLEOPTERA OF BAJA CALIFORNIA: by G. H. HORN, M.D.

In the Proceedings of the California Academy of Sciences, ser. 2, vol. iv, pp. 302—449, t. 7 (August, 1894), Dr. Horn gives a complete list of the *Coleoptera* of Lower or Baja California, with descriptions of new genera and species. This is a useful contribution to our knowledge of the Coleopterous fauna of a little known region: Lower California having been hitherto a sort of "no man's land" amongst Entomologists. The region in question is not included within the scope of Godman and Salvin's *Biologia Centrali-Americana*, and Leconte, Horn, and other North American Entomologists exclude it from their lists of the *Coleoptera* of America

north of Mexico. Dr. Horn's list includes nearly 700 species, seventy-nine of which are described as new, with three new genera. Seventy-four species only are specially mentioned as common to Lower California and Mexico, or Central America, but this number would probably be doubled by a more careful analysis of the ranges of the species already recorded. The families containing the largest number of species are:—*Tenebrionidæ*, 101; *Carabidæ*, 71; *Chrysomelidæ*, 62; *Scarabæidæ*, 51; *Cerambycidæ*, 48; *Staphylinidæ*, 29; *Dytiscidæ*, 26; *Curculionidæ*, 22; and *Buprestidæ*, 21. The peninsula of Lower California is a narrow strip of land, about 700 miles long, running in a south-south-easterly direction from the southern boundary of California, varying greatly in width, although in a general way narrowing from north to south. Through the axis runs a chain of mountains of a general elevation of 3000–4000 feet. The fauna of the Pacific coast of Lower California shows it to be a continuation of that of California; the fauna of the Gulf coast resembles that of Arizona and the Colorado Desert, with a slight admixture of Mexican forms. It is in the southern part only, in the region of Cape San Lucas, that the fauna assumes a more tropical aspect, and this is not only the case with the *Coleoptera*, but, to a slight extent, with the *Aves* and *Rhopalocera* also, a humming-bird, *Basilinna Xantusi*, and a butterfly, *Myscelia auletes*, being closely allied to Central American forms. Notwithstanding the arid nature of the greater part of the country, it is probable that very many more species really exist there, the numerous *Longicornia*, *Buprestidæ*, &c., indicating the presence of a considerable amount of forest. Very many of the species enumerated by Dr. Horn are peculiar, so far as we know at present. One species, *Cantharis angulicollis*, Dugès (An. Mus. Michoacano, ii, p. 105 [1889]) = *vulnerata*, Lec., appears to have been accidentally omitted from Dr. Horn's list.—G. C. C.

Obituary.

Pastor Hans Daniel Johan Wallengren, Hon. F.E.S.—By the death of Pastor Wallengren (which occurred at his parish of Farhult, in South-west Sweden, on October 25th, 1894, in his 72nd year) Scandinavia loses one of her most prominent entomologists, and entomological science generally a most careful and strikingly original worker, one who was comparatively isolated in the locality of his pastorate duties, and yet, notwithstanding this disadvantage, enriched entomological literature with many valuable papers and memoirs. Of his early life we at present know nothing. He commenced as an entomological author about the year 1850, and the flow of articles from his pen has since been nearly continuous, mostly in the publications of the Swedish Academy, but also latterly in the "*Entomologisk Tidskrift*." He studied all Orders, but especially *Lepidoptera* (*Rhopalocera* particularly) and *Neuroptera*. In the latter Order a Monograph of the Scandinavian *Planipennia* appeared in 1871, a continuation on the *Trichoptera* so lately as 1891, and there are not wanting signs that he intended to complete the series with the *Pseudo-Neuroptera*, for in the same part (1894) of the "*Tidskrift*" that contains the announcement of his death is a Synopsis of the Scandinavian Dragon-flies from his pen. It has been said that in *Lepidoptera* he particularly favoured the Butterflies; but he also did much good careful original work in the Scandinavian *Micros*, and his researches into

structural characters have mainly proved perfectly sound, and his generic divisions have mostly been adopted. The writer of this notice owes a debt of gratitude to his memory for the great assistance received from him in Scandinavian materials and notes when writing the Revision and Synopsis of European *Trichoptera*. He was elected an Honorary Fellow of the Entomological Society of London so recently as 1893.—R. McLAHLAN.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *November 19th, 1894.*—Mr. G. T. BETHUNE-BAKER, Vice-President, in the Chair.

The following were exhibited:—By Mrs. P. W. Abbott, *Sesia sphegiformis* from Wyre Forest. Mr. P. W. Abbott, a short series of *Caradrina ambigua*, the insect taken at Freshwater, I. of Wight, which has been recorded in error as *C. superstes*; also *Hydrilla palustris* from Wicken, and *Leucania albipuncta* from Freshwater. Mr. R. C. Bradley, *Diptera*, as follows: *Idioptera pulchella*, Mg., from Sutton, with its semi-apterous female; *Limnobia nigropunctata*, Sch., from Sutton and Wyre Forest; and *Trimiera pilipes* from Tring. Mr. C. Runge, *Erebia athiops* from Witherslack, &c. Mr. A. H. Martineau, a series of the genus *Vespa*; also a specimen of *Crabro quadrimaculatus*, with an unusual amount of yellow on the abdomen, giving it quite a peculiar appearance. Mr. C. J. Wainwright, a box of *Hymenoptera*, including a specimen of *Bombus Derhamellus*, with no yellow on the front of the thorax, from Sutton. By Mr. H. J. Sands, living *Vanessa c-album*, bred two months before from a brood, some of which remain as healthy pupæ still.—COLBEAN J. WAINWRIGHT, *Hon. Sec.*

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY—ANNUAL MEETING: *January 14th, 1895.*—Mr. S. J. CAPPER, F.L.S., F.E.S., President, in the Chair.

The election of officers resulted in the re-election of Mr. Capper as President; Mr. Stott as Treasurer; and Mr. Locke as Librarian; Mr. W. E. Sharp was elected Vice-President; and the Rev. R. Freeman, Dr. Ellis, and Messrs. Jones, Gardner, and Wilding were elected for the Council; Mr. Locke was elected Secretary, but on his declining the office, Mr. Pierce agreed to continue acting *pro tem*.

The President, in thanking the Members for his election, spoke of the prosperous state the Society was in, and alluded to the death of one of the earliest helpers of the Society, Dr. Buchanan White. The balance sheet showed for the first time for a number of years a balance on the right side, there being £1 12s. 1d. in hand.

Dr. H. O. Forbes, Curator of the Derby Museum, Liverpool, was elected an Honorary Member of the Society.

Mr. J. W. Tutt, F.E.S., of London, read a paper, entitled, "Some random notes on The Romanes Lecture of 1894, entitled 'The effect of external influences upon development.'" The President exhibited a number of Scotch *Zygana exulans*, and southern forms of *Polyommatus Phleas*; Mr. Tutt, a number of *Zyana* from the Alps and other localities; Mr. Roxburg, *Polia nigrocincta* from the Isle of Man.—F. N. PIERCE, *Hon. Secretary, pro tem.*, 7, The Elms, Dingle, Liverpool.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY:
November 22nd, 1894.—E. STEP, Esq., President, in the Chair.

Mr. Barrett exhibited, on behalf of Mr. Sydney Webb, a grand series of varieties of *Arctia villica*, L., from one with very few black markings to one almost wholly suffused with black; also, on behalf of Major Still, specimens taken on Dartmoor this year, to show the apparent influence of the extreme humidity, among them being a black example of *Plusia gamma*, L.; a deep toned *Cidaria psittacata*, Schiff., with a green marginal border on the hind-wing; a much suffused black form of *Polyommatus Phlaeas*, L.; and dark vars. of *Pararge Megera*, L., and *P. Egeria*, L. Mr. R. Adkin, on behalf of Mr. R. E. Dillon, a number of Irish *Lepidoptera*, including *Taniodactyla gothica*, L., var. *gothicina*, H.-S., a red var. of *T. gracilis*, Fb.; a dark specimen of *Aplecta nebulosa*, Hufn.; and an almost black *Boarmia repandata*, L. Mr. Tutt, a large number of *Rhopalocera* captured near Aix-les-Bains on August 22nd, including *Leucophasia sinapis*, L., *Colias Edusa*, Fb., *C. Hyale*, L., *Satyrus Arethusa*, W. V., and vars., *S. Briseis*, L., with a very fine var., *Erebia athiops*, Esp., and several of the genera *Argynnis*, *Lycæna*, and *Melitæa*, and read notes on them; also specimens of *Lycæna Ægon*, Schiff., and *L. Argus*, L., asking if any one could point out satisfactory differentiating characters. A discussion ensued. Mr. Fremlin, a fine specimen of *Charocampa celerio*, L., captured at the S. Foreland lighthouse on August 12th, 1894. Mr. Mansbridge, two bred series of *Selenia bilunaria*, Esp., from Horsforth and York, including a few *juliaria*, Haw.; one female had only the central band developed. Mr. Moore, *Pieris Daphidice*, L., from Blois. Mr. Tutt read a paper, entitled, "*Zygana transalpina*, Esp., and its varieties," and exhibited a large number of specimens, one being set to show the curious tufts of feather scales, said to be scent glands, which exist at the anal cavity. Mr. Adkin read a paper, entitled, "Reflections upon odd Rambles on the Sussex Downs," and exhibited a number of specimens captured near Eastbourne during his holiday there. A discussion ensued on the various habits *Rhopalocera* have for effectually concealing themselves. Mr. Tutt referred to *Erebia Tyndarus*, Esp., which drops down, falls over sideways, and so wriggles on the cow paths of the high Alps, until it reaches some overhanging tuft of grass, under which it rests.

December 13th, 1894.—T. W. HALL, Esq., F.E.S., Vice-President, in the Chair.

Mr. Robinson, 54, Boundary Road, N.W., was elected a Member.

Mr. C. A. Briggs exhibited a much suffused variety of *Eurhypara urticata*, L. Mr. Williams, specimens of two long bred series of *Vanessa urtica*, L., from Leigh; the larvae were taken at the same time from one bed of nettles, those of one series were full-fed, those of the other small. There was a very distinct and constant racial difference between the two series. Mr. Adkin, many specimens of *Melanippe fluctuata*, L., from various localities, and contributed notes. Mr. W. Mansbridge, a large number of *Lepidoptera* from the Indian Territory, U.S.A., and read a paper thereon. Mr. W. A. Pearce also exhibited specimens from the States to illustrate Mr. Mansbridge's paper. A discussion ensued upon the migration of *Anosia Archippus*, L., and the forms of *Colias Eurytheme*, Bdv. Mr. Brooks, of Rotherham, a large number of species from that place, including a long series of *Polia chi*, L., showing almost every conceivable variation; and melanic specimens of *Hybernia*

defoliaria, L., *Boarmia repandata*, L., and *Phigalia pedaria*, Fb. Mr. McArthur, specimens of *Coleophora loricella*, Hb., from N. Devon. Mr. Tutt, a large number of *Zygæna medicaginis*, Bdr., from the Alps, and read a paper on that species and its varieties.

January 10th, 1895.—The Vice-President in the Chair.

Mr. Thornhill, Castlebosy, Ireland; and Mr. Brooks, Grange Hall, Rotherham; were elected Members.

Mr. C. G. Barrett exhibited a specimen of *Hydrilla palustris*, Hb., from Wicken, and four specimens of *Caradrina ambigua*, Fb., from the Isle of Wight. Mr. Tutt stated that the species he had reported as *C. superstes*, Tr., had turned out to be a form of *C. ambigua*, but he was of opinion that some of his Deal captures were *C. superstes*. Mr. W. A. Pearce, a bred specimen of *Acherontia Atropos*, L.; it was stated that the pupa of this species had no free segments, and was thus unable to work its way through the earth. Mr. R. Adkin, bred specimens of *Vanessa urticae*, L., from Sutherland, one of which had the central costal and the inner marginal blotch united. Mr. Tutt gave an interesting account of a change in habit of spots of a race of *Zygæna trifolii*, Esp., within the last fifteen years; in the discussion which followed, several Members gave instances of a small six-spotted *Zygæna* being taken early in June in various localities. Mr. Carrington gave a short summary of the spread and increase of melanism during the last twenty years. Communications were read from Mr. Step, Portscatho, Falmouth, and from Mr. Brooks, Rotherham. Mr. Tutt read a paper on "*Zygæna Ochsenheimeri*, Zell., and its varieties," and exhibited a long series in illustration.—HY. J. TURNER, *Hon. Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON—THE SIXTY-SECOND ANNUAL MEETING :
January 16th, 1895.—HENRY JOHN ELWES, Esq., F.L.S., F.Z.S., President, in the Chair.

An abstract of the Treasurer's accounts, showing a good balance in the Society's favour, having been read by Mr. W. F. H. Blandford, one of the Auditors, Mr. H. Goss read the Report of the Council. It was then announced that the following gentlemen had been elected as Officers and Council for 1895 :—President, Professor Raphael Meldola, F.R.S.; Treasurer, Mr. Robert McLachlan, F.R.S.; Secretaries, Mr. Herbert Goss, F.L.S., and the Rev. Canon Fowler, M.A., F.L.S.; Librarian, Mr. George C. Champion, F.Z.S.; and as other Members of the Council, Mr. George T. Bethune-Baker, F.L.S., Mr. Walter F. H. Blandford, M.A., F.Z.S., Dr. Frederick A. Dixey, M.A., Mr. Henry J. Elwes, F.L.S., Mr. Charles J. Gahan, M.A., Professor Edward B. Poulton, M.A., F.R.S., Dr. David Sharp, M.A., F.R.S., and the Right Hon. Lord Walsingham, LL.D., F.R.S. It was also announced that Professor Meldola, the new President, would appoint Lord Walsingham, Mr. Henry J. Elwes, and Professor Edward B. Poulton, Vice-Presidents for the Session 1895—6. The outgoing President then delivered an interesting address "On the Geographical Distribution of Insecta."

A vote of thanks to the President and other Officers of the Society having been passed, Mr. Elwes, Mr. McLachlan, Mr. H. Goss, and Canon Fowler replied, and the proceedings terminated.—H. Goss and W. W. FOWLER, *Hon. Secretaries*.

A HUNT FOR *PHORODESMA SMARAGDARIA*.

BY HENRY A. AULD.

Little more than five and twenty years ago *P. smaragdaria* was hardly known as a British Lepidopteron. Mr. Haggard and Mr. Douglas were fortunate in finding it in this country. Newman records that "Thomas Ingall found the caterpillar of this species on the coast of Essex." Stainton says that it is rare, and gives Southend, Southchurch, and St. Osyth as localities in which it has been found.

Having been urged by that indefatigable collector, Joseph Chappell, of Manchester, to go and seek the larva on the coast of Essex, bearing in mind that what we had to look for would be decked out with fragments of its food-plant, like its first cousin *P. bajularia*—a veritable Jack-in-the-green—we determined that on the first opportunity we would do our best to make its acquaintance.

Now the question of its food-plant was the difficulty. Did it feed on milfoil, we asked? Yet why should we doubt it? Kirby, in his "European Butterflies and Moths," has figured the larva on *Achillea millefolium* (pl. 47c), besides we remembered that on one occasion living larvæ were exhibited on a spray of yarrow at a meeting of one of the London Societies, and so, although we started on the wrong scent, our minds were set at rest later on.

When once Messrs. Machin and Pratt began to find the larvæ of *P. smaragdaria* in fair numbers, the food did not long remain a mystery. Both of these Entomologists had a certain number of followers eager to secure the rarity, and the story runs thus:—One man hard at work beating *Coleoptera* from the sea-wormwood (*Artemisia maritima*), which grows so abundantly and luxuriantly on the saltings, upon examining the tray for the smaller species of his quest, much to his astonishment saw a piece of the plant stretch itself out and begin to walk away. *Eureka!* he cried, and placed it in a box. Presently he chanced to come face to face with a "brother" hunter, and as in that district in those days collectors generally gave one another a berth of a mile or so, they were not over anxious to travel the same road. Nevertheless, he of the net remarked, "Well, have you got anything?" "Yes, I rather think I have!" rejoined our beetle-catching friend, "What is it?" anxiously asks the other. "Why, it is your friend *smaragdaria*." The larva was produced, the rival's face grew very long indeed, and he said, "No it ain't" (which was neither true nor grammatical), but when Mr. Coleopterist said, "Well, any how, I mean to rear it, and see what it comes to," the truth, the whole truth, and

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nothing but the truth concerning the food of *Phorodesma smaragdaria* leaked out.

We have got at the plant which supplies our "emerald" with food, and now we are going to get *Phorodesma* itself. So, on a bright and warm day in the early part of September, when sportsmen are hurrying off with gun and bag in time for the early train, we meet at Fenchurch Street Station of the Southend line—two of us, and a novice whom we had invited with the intention of giving him a good day's sport.

In little more than an hour we arrived at Benfleet Station for the land of Canvey. Here a boatman wearing the happy expression of Charon himself, ferries us over the creek, and we are on *terra firma* or "Little Holland" as it has been called. After a survey of this interesting little island, we again hail our boatman, and regain the mainland. Here the work begins. Having selected a good patch of *Artemisia*, which is plentiful, and occurs freely right along the coast to St. Osyth and beyond, we spread out our mackintoshes, lie down upon them, and carefully examine each sprig of the plant. "Here is one!" "Where?" asks our tyro. "There! don't you see it?" "No, I don't," he answers. "I will not touch it, but you look once again carefully on that sprig before you." "Can't see it" he says. When the animal is pointed out to him once more, he exclaims, "What that thing?" and he gives it a contemptuous prod, which causes the larva to make some movement, which attracts his eye. "So that's it, is it? No wonder it has so long remained obscure. The only marvellous part is that it was ever discovered, so closely does it resemble the plant itself." We go to work and soon obtain a good bag of these little fluffy-looking spider-like creatures, and time passes on. The salting widening and narrowing in parts, with sea aster (*Aster tripolium*), glasswort (*Salicornia herbacea*), and sea purslane (*Atriplex portulacoides*), together with other salt-marsh plants, forms a rich carpet.

Presently our friend remarks that his boots are getting wet. We look up and see the tide advancing, for it had overflowed its banks, and we have just time to retreat to the river wall. There we make our repast, watching the water gradually rising, and the *Noctua* as they, driven from their hiding places, fly from one to other of the spikes of the tallest plants now just above the surface of the great sheet of water before us—"A sight for the gods!" we exclaim. How is *P. smaragdaria* now? We shall see. So, when we have refreshed the inner man, and have discussed things in general, two hours have passed away. Then all is high and dry as before. Again we go to work,

and *P. smaragdaria*, none the worse for the submergence, is gathered into our collecting boxes. A few hours later there remains nothing to indicate that the ground had been flooded, nor would any one have found it easy to believe that the spot upon which we were then reclining had, a few hours previously, been at the bottom of the sea.

That *P. smaragdaria* is subject to periodical immersions is a fact in the economy of the species of more than ordinary interest, and will be of use for theorists to work upon; but we do not stop to theorize nor to collect any longer. Well satisfied with our day's work, we gather together some plants of *Artemisia*, and leave this desolate spot. Soon we arrive by train at Tilbury and cross the river to Gravesend, where we find all is life and activity—a strong contrast to poor Essex. Our friend having thanked us for introducing him to scenes so new, now seeks the heart of Kent, enjoying for a finish up a night's walk of six miles through lovely lanes and woods. The utter desolation of that part of the Essex coast, with its population of careworn farmers, the weird night passage across the river, and the final blaze of gas light, soldiers, market folk, and the busy rattle of traps, have been a fascinating change to him. So we part, and whilst on our way to the metropolis with a cargo of *P. smaragdaria* and *Artemisia*, we resolve to make known, for the benefit of others, that which has come to our knowledge concerning the habits of this species.

31, Belmont Hill, Lee, S.E. :

January, 1895.

[The original account of the larva of *Phorodesma smaragdaria*, Esper, by G. Koch, appeared in the "Stettiner entomologische Zeitung," xii, p. 265 (1851), and a translation thereof by me was read at the meeting of the Entomological Society of London on March 1st, 1852 (Trans. Ent. Soc. Proceed., vol. ii, n. s., p. 5, 1852). The discovery of the larva is attributed to Herr Verwalter Muhlig, who found it in the town woods of Frankfort on the Main, where the perfect insect is not uncommon, the food-plant being stated to be the milfoil (*Achillea millefolium*), and, in confinement, also *Poterium sanguisorba*; light places in the woods, on the level ground and dry ditches, where the food-plants grow plentifully, being the favourite localities. The difficulty of seeing the larva-case, as stated by Mr. Auld, was well, though not idiomatically, expressed to me personally by the late Dr. Becker, of Wiesbaden, in 1848, when he was a refugee in this country. He said, "I shall have an adult larva in its case before you, I shall tell you it is there, and yet you shall not distinguish the case from its similar surroundings." The discovery of the larva on *Artemisia maritima* is of much interest. Mr. Hagger and I walking together on the seawall at St. Osyth in July, 1845, kicked up five specimens of the imago from among *Achillea millefolium* and grass. The discovery of the species in this country was by the taking of one example at Southchurch, Essex, as recorded by Curtis.—J. W. DOUGLAS].

FURTHER NOTES
ON THE HABITS OF *PSYCHE VILLOSELLA*, OCHS.

BY C. G. BARRETT, F.E.S.

The perusal of some recent notes of mine upon this species (Ent. Mo. Mag., n. s., vol. v, pp. 217-18) has induced Mr. McRae, of Bournemouth, to favour me with some further particulars of his own observations, of great interest; and also to allow me the opportunity of reading and quoting from two letters received by him from our lamented friend, Mr. J. Jenner Weir, which greatly tend to complete our knowledge of the history of the species.

Mr. McRae says, "I took my first specimen of the male flying in the bright sunshine at about three in the afternoon, in the month of July, twenty years ago. During all the years since then I have only on two occasions witnessed its flight, and each time in bright sunshine in the early afternoon. The flight is very rapid, and much resembles that of *Anarta myrtilli*. In captivity I have always found the males to emerge at about six p.m., or very rarely at any other time. In less than half an hour after freeing the pupal envelope from the case the wings are fully developed and fit for flight, and if not watched, the males soon damage themselves by their liveliness and eager endeavour to find the female. My lamented friend, the late Mr. Jenner Weir, whom I introduced to my colony of *villosella*, appears to have observed what I should have regarded as a physical impossibility regarding the copulation of this species, and altogether incredible but for my faith in his sound judgment and keen observation. I am sorry to say that my own chances of further observation on the habits of this species are very uncertain, owing to the wholesale destruction of the locality by fire, in its conversion into golf links."

Mr. Weir, writing to Mr. McRae, says, "I am very much obliged to you for the females, with families, of *Psyche villosella*, which you regard as a case of true parthenogenesis; this may be so, but I have lately had my views on the subject rather shaken. You recollect that I took a large number of the cases when last I had the pleasure of visiting you, and I also preserved through the winter some thirty or forty of the larvæ, which spun up while I was at your house. Now I find that, as a rule, the female did not leave the case, and further, I noticed that no male paid any attention to those females which I had helped out of the cases; but when a male emerged he at once sought a female which had not left the case and thrust his abdomen into the case, this part of his body becoming very much extended."

"What I find is this—that the male, always, when emerging, leaves the pupa-skin nearly two-thirds projecting from the larval case; the female, on the contrary, leaves the unbroken abdominal portion of the pupa-skin at the bottom of the case; she partly emerges and clears the emergent end, thus enabling the male to obtain access to the case; he inserts his extensible body as far into the case as the wings will permit, so that I have seen the wings become horizontal. Afterwards the female retreats to the bottom or proximal end of the case and deposits her eggs in a mass, apparently in the old skin."

"Upon opening the cases that I had by me I found that many larvæ had been attacked by an *Ichnæumon*, even those I had kept by me for a whole year. I was much struck with this, because the larvæ must have been the hosts of the parasites all the winter." "I do not say that true parthenogenesis does not take place some-

times, indeed, I think it does, because I have had the eggs of *Bombyx quercus* hatch when they could not have been fertilized, for I had but one moth, and that a female. You are probably aware that, in the allied genus *Eceticus*, the male is known to enter the pupa-case to the entire ruin of his wings." "I find the larva of *P. villosella* prefer the alpine strawberry to heath; I have both in my large case, and few are found on the latter."

I have here combined and arranged the remarks contained in more than one letter. In any respect in which previous remarks of my own appear not to be in accord with Mr. Weir's statements, I desire to defer to him, his opportunities of actual observation having been far superior.

The species was described and figured by Curtis as *Pentophora nigricans* from specimens taken by the late Mr. J. C. Dale at West Parley Coppice, in June, 1824.

39, Linden Grove, Nunhead, S.E.:

January, 1895.

OCCURRENCE OF *TINEA VINCOLELLA*, H.-S., AT PORTLAND, WITH NOTES ON ITS LIFE HISTORY.

BY NELSON M. RICHARDSON, B.A., F.E.S.

Between June 26th and July 1st, 1894, I bred eight specimens of a moth not hitherto recorded as British, which were kindly identified for me by my valued correspondent Major E. Hering, as *Tinea vinculella*, H.-S. (Herrich-Schäffer, v, p. 75, fig. 275), a rather rare species, found in July at Glogau, Vienna, Ratisbon, and in the Taunus Mountains near Frankfurt a/M. and Wiesbaden. I first found the larva at Portland in 1892, when trying to discover that of *T. subtilella*, which I thought might feed on lichen, but bred none till last year, though one or two pupæ developed sufficiently for me to ascertain by dissection that I had not the larva of *subtilella*, but something new to Britain.

The following is a description of the imago:—

Exp. al., 4". Fore-wings blackish olive-brown, nearly black when fresh, rather glossy, with a slight golden reflection. The costa is divided into four nearly equal parts by silvery-white markings; (1) a narrow curved fascia, generally of regular width, but sometimes a little narrower towards the oost, slightly oblique in position, the costal end being nearest the base; (2) costal and anal triangular spots, also obliquely placed, the latter extending through the cilia, occasionally (according to Heinemann) uniting to form a fascia; (3) a crescent-shaped costal spot concave posteriorly. Cilia like the wing, except that the outer row of scales is silvery-white in the apical region.

Hind-wings and cilia dark grey, with slight golden reflections, especially in the cilia. The thorax and the extreme top of the head are in colour like the fore-wings; the abdomen more like the hind-wings. The front part of the head is pale ochreous.

Antennæ dark brown, faintly ringed with white, flattened in the ♂ (the respective diameters being about '05 and '07 mill.), whitish underneath. Maxillary and labial palpi well developed, whitish. Legs blackish, more or less ringed with whitish.

In colour and size, this somewhat resembles *T. argentimaculella*, the most obvious points of difference being as follows:—The wings are acutely pointed in *vinculella*, but bluntly in *argentimaculella*, this being most striking in the hind-wings, as it is rather hidden in the fore-wings by the dense cilia. The markings in *vinculella* are broader and not so silvery, and the minute apical silvery spots of *argentimaculella* are absent; the markings also differ in shape in the two species.

It may also be noted that the larva of *argentimaculella*, which feeds, like the present species, on lichens, makes no case.

The following description of the very peculiar larva was taken from a full-grown specimen, October 17th, 1894:—

Length, 3·2 mill. when at rest, 3·8 mill. when stretched out in crawling. Breadth of head, 0·4 mill., prothorax, 0·6 mill., mesothorax, 0·65 mill., metathorax, 0·7 mill. Segments 7—11 are considerably broader, segment 8 being about 1 mill.; the last segment is the same breadth as the head. These measurements are taken when the larva is 3·2 mill. long, and would not be correct for the middle segments when it was stretched out. It is rather cylindrical than flattened in shape; the spiracular skin-fold is much developed.

The legs are very long, about 0·8 mill., but the claspers, though well furnished with hooklets, are very short and small. The anal flap is furnished with a fringe of small dark bristles, and the bristles on the body generally are large, especially the one which springs from a tubercle in the front of the spiracular region of the prothorax, which is about 1 mill. in length, and, with its tubercle, capable of considerable independent motion. The antennal processes are two or three-jointed, and rather long, and bear a few bristles at the tip.

The head and first few segments are rather polished, the posterior segments duller, as is usual in case-bearing larvæ. The head, prothoracic plate, and leg plates are somewhat dark brown, the general ground-colour pale yellowish, and the larva being rather transparent, the food is visible through the skin, which gives an appearance of a greenish-grey dorsal stripe. The anterior margins of the first few segments are whitish; bristles tinged with the ground-colour; spiracles inconspicuous.

The pupa is 3·2 mill. in length, rather soft, straw-colour, except the abdomen, which inclines to orange; eyes nearly black. Skin rugose, segments not well defined. Antennæ slightly longer than the body; wing-cases almost as long as the body; these parts are considerably raised, and do not appear to be very closely attached, the last five segments, and perhaps more, being certainly free. The maxillæ are short, and lie above and between the two sickle-shaped labial palpi. The maxillary palpi lie nearly at right angles to the maxillæ, just under the eyes, and end beneath the antennæ. The three pairs of legs end at $\frac{1}{3}$, $\frac{2}{3}$, and the end of the pupa. There are a few small bristles about the mouth, and also on the abdomen, but very inconspicuous. There is a considerable constriction between the head and prothorax. The end of the abdomen is blunt, with no hooks or bristles.

I have only taken one imago, an exceedingly worn ♀, on July 18th, 1888, though I have often searched for it. Those bred in captivity have, like most of the genus, great running powers.

The larva makes itself a case out of lichen and particles of stone, with a silk lining, something like that of *T. pellationella*, but much neater and better shaped and differently formed at the ends, which are similar to each other. The case lies quite close to the lichen-covered rock, which it resembles so closely that it is difficult to see. The rather flat case is less than half as deep as it is broad, and nearly three times as long; the transverse section in the middle is slightly convex below, and more so above. The upper half projects considerably beyond the lower at each end, the extreme portion of the lower side forming a kind of flap, which is closely shut up against the top part, when the larva retreats into its case, and opens when the head is protruded. This flap is so elastic that if, when the case has been lately tenanted, it is bent open by a needle, it springs back and shuts on being released. As a rule the larva, when it retreats into its case, leaves its two long prothoracic bristles projecting outside, and it would naturally be concluded that these were delicate organs of touch, especially as they are moved about in different directions, independently of the movements of the prothoracic segment, but I have not, on trying them, found them very sensitive. At the base of this flap the case is narrowest, but swells out again a little near the end, which is beautifully rounded, so as to fit against the inside of the top part.

The measurements of a case containing a living larva, full-grown or very nearly so (A), and of a second one containing a younger living larva (B), are as follows:—
Total length (A) 5·6 mill., (B) 4·6 mill. Greatest breadth (in middle) (A) 1·97 mill., (B) 1·1 mill. Breadth at narrowest part (about 1 mill. from each end) (A) 1·2 mill., (B) 1 mill. Breadth close to end (A) 1·4 mill., (B) 1·05 mill. Thickness in middle (A) 0·9 mill., (B) 0·5 mill. Thickness at narrowest part (about 1 mill. from end) (A) 0·5 mill.

Length of flap (A) 0·7 mill.

Length of projection beyond flap (A) 0·7 mill.

Length of under-side between ends of flaps (A) 4·3 mill.

This shows the great difference in shape between young and full-grown cases.

I have been particular in giving these measurements, as Major Hering has sent me a translation from von Heinemann (*Schmetterlinge Deutschlands und der Schweiz*, Abth., ii, Bd. ii, p. 56), as follows:—

"I have cases from the Taunus and from Ratisbon. The former are very flat, 1½ lines (German) broad, 3½ lines in length, rounded on both ends and compressed before them, covered with fine grains of sand, flesh-coloured (*sic!*), with darker

grains; those from Ratisbon more cylindrical, $\frac{1}{2}$ line broad, and 3 lines long, less flat, rounded only on the hind end, and compressed there, floury-white on the surface. In spring on lichens."

I have found that cases from Portland are of very delicate structure, and, after they become empty, very soon get the ends more or less rubbed off, and also tend to assume a cylindrical form; the same result takes place if they are not very carefully handled; and I think it not impossible that the difference between the two forms of cases mentioned by von Heinemann may be accounted for by the manipulation they received from the collector, or by their being tenanted or empty when collected. In the Portland specimens there is no difference between the ends, and they are used indifferently by the larva, as in the case of *T. pellionella*. It is, in fact, very nimble in turning round inside its case, and will sometimes draw its head in at one end, and almost directly put it out at the other, when stopped by a paint-brush.

The little claspers, of which it makes no use in walking when taken out of its case, are doubtless employed in holding on inside to the delicate silken lining. If taken out of its case and left on the lichen-covered stone, it will, in the course of a day or two, construct a new case for itself, like most case-bearing larvæ.

The Portland cases, like the German, are made of lichen and sand, or small stony particles, which must in some way be obtained from the surface of the very hard Portland stone. As I find that these particles are present in the lichen when brushed off the rock, I can only infer that the surface of the rock is slightly disintegrated by the roots of the lichen, and utilized by the larva. Such a case must be a great protection against the jaws of many insects.

Probably this larva, like *T. pellionella*, makes a case as soon as it is hatched. It lives upon the under-side of stones, and feeds entirely on the fine microscopic lichen which covers them. It is sometimes to be found on the sides of the stones, but I have never seen it on the top. Its favourite haunt is amongst the loose piles of stones so abundant at Portland, where it is generally distributed, though scarce.

I have this winter two larvæ, found last spring with others which spun up and emerged last summer, which proves that the larva sometimes, and perhaps always, feeds for two years before pupating; a fact which is also indicated by the occasional occurrence of very small larvæ at the same time as full-grown ones, the former being very hard to detect, and, therefore, probably often passed over.

Lord Walsingham has very kindly sent me specimens of *Tinea*

Leopoldella, Costa, from Cannes, a smaller and very closely allied species, and Major Hering alludes to another near ally, *T. vinctella*, H.-S.

I hope that a coloured plate of *T. vinculella* with its larva, case, &c., may ere long appear in the Proceedings of the Dorset Field Club.

Monte Video, near Weymouth :
January, 1895.

DESCRIPTION OF THE LARVA OF *TEPHROSIA EXTERSARIA*.

BY GEORGE T. PORBITT, F.L.S.

When on a collecting expedition to Abbott's Wood, Sussex, with Mr. W. H. Tugwell, at the beginning of June, 1892, we found *Tephrosia extersaria* a very abundant visitor to the sugared trees. From some of the specimens boxed eggs were obtained, but it was not until some time after they were hatched that I discovered there was no English description of the larva, hence only meagre notes had been made on the earliest stages. Fortunately the eggs, which were dull dark green, did not all hatch together, so that when I did find out the necessity of studying them closely, I was able to take notes on the larvæ in various stages. By this time, August 5th, they varied from half an inch to an inch or a little over in length. Up to nearly three-quarters of an inch the colouring and marking are pretty much the same, and may be described as follows:—

Body slender, cylindrical, and of almost uniform width throughout; head rounded, but rather flat in front, fully as wide as the second segment; skin smooth and glossy, and the segmental divisions clearly defined. Ground-colour bright pale green; the head yellowish-green in front, brown at the sides; the very fine medio-dorsal line, and the broad subdorsal stripes darker green; spiracles black. Ventral area and prolegs bright green, the front pair of prolegs tipped with brown; anterior-legs grey, ringed at intervals with brown.

In the next stage, that is, when about three-quarters of an inch has been attained, two small raised tubercles have appeared on the 9th segment; the ground-colour has become a darker green, and the fine medio-dorsal line still darker green; the subdorsal stripes have become more or less purple, some specimens having very little of this colour, in others it is the predominating colour of the stripes; the two tubercles on the 9th segment are purple in both pale and dark forms; the segmental divisions are yellow or pink in different specimens; the head is still yellowish-green, but has lost a good deal of the brown at the sides.

At the next moult an inch has been attained; the skin has now quite lost its glossy character, and has become rather rough in appearance; the two small tubercles on the 9th segment have swollen into a distinct transverse ridge, the segments also slightly overlap each other. Ground-colour bright green; the middle of

the dorsal area forms a broad yellowish stripe, enclosing the fine, dark green medio-dorsal line; the purplish subdorsal stripes have become broken into large, irregular, dark sienna-brown patches, which on the dark green ground-colour are very conspicuous: these dark patches are most dense on the front and posterior segments; the ridge on the 9th segment is also of this dark colour; head now almost uniformly green; spiracles dark sienna-brown, with pink centres. Ventral surface of the same green as the dorsal area, but numerously spotted with dark sienna-brown; prolegs also green, with the outside of the front pair purple; anterior-legs green, marked with brown.

By August 15th, many of the larvae were becoming full-fed, though some of them were still not half grown. The adult larva is about an inch and half long, and of fair bulk, inclining, however, more to slenderness than obesity. Head rounded at the sides, rather flattened in front, a little narrower than the 2nd, and still narrower than the 3rd and 4th segments, which, with the 10th, 11th, and 12th, are rather swollen; the remaining segments are of nearly uniform width, allowance being made for the overlapping at the divisions; there is a raised transverse hump on the 9th segment, and a smaller transverse ridge on the 6th segment.

There are two very distinct types of colouring:—

In Var. I, which is the more numerous, the ground is pale pea-green, the head and the dorsal area at the segmental divisions strongly tinged with yellow; the lower part of each lobe spotted with black; the alimentary canal shows through as a very narrow and interrupted dorsal line; a purplish-brown patch, marbled with white (this white forming two distinct spots on each of the middle segments), on the posterior half of each segment, except the 12th and 13th, and extending from the subdorsal to the spiracular regions, take the place of the subdorsal and spiracular stripes; the hump on the 9th segment is dark chocolate-brown at each side, but paler purplish-brown in the middle, which gives the appearance of there being two small dark humps; the smaller ridge on the 6th segment dark chocolate-brown; spiracles distinct, each being placed on a round lunule of a paler shade of the ground-colour, they are pink, encircled with a clear black ring.

Ventral area dingy green, in some specimens with a central longitudinal row of white spots; in others these spots are absent; the segmental divisions, and the outside of the front pair of posterior-legs purplish-brown; anterior-legs also reticulated with purplish-brown.

In Var. II, the ground-colour is purplish-brown, except the head and 2nd segment, which still partly retain the green character of the more numerous form; head tinged with brown, and the black spots at the base of the sides of each lobe distinct; in some specimens two interrupted yellowish lines extend through the dorsal area; in other specimens these lines are almost obliterated; the purplish-brown marks of Var. I are in this form replaced by dark chocolate-brown, but the two white, nearly triangular spots on the posterior edges of the segments (in some specimens from the 2nd to the 11th) show out distinctly; both the lateral ridges are dark chocolate-brown; each spiracle is placed in a pale lunular patch, pinkish, ringed with intense glossy black.

Ventral surface dull purplish or chocolate-brown (in some specimens tinged with dingy green), except on the frontal segments, where it is green, and an interrupted stripe of clear white spots extends through its centre; segmental divisions purple;

outer part of the front pair of posterior-legs purplish-brown, the hind pair green; anterior-legs reticulated with purplish-brown.

My larvæ fed on birch, oak, willow, and osier, but seemed to prefer willow and osier. The last specimen went down on September 4th, and on the 19th I described one of the pupæ as follows:—of ordinary shape, a little less than half an inch in length, stout, slightly rough, but glossy; the head-, eye-, leg-, and wing-cases dull olive-green; abdominal segments reddish-brown, with darker spots and segmental divisions.

The moths emerged from May 20th to 28th in the spring following.

Crosland Hall, Huddersfield:
January 5th, 1895.

SUCCESSFUL INTRODUCTION OF HUMBLE BEES INTO NEW SOUTH WALES.*

BY A. SIDNEY OLLIFF, F.E.S., GOVERNMENT ENTOMOLOGIST.

I have been doing my best to introduce Humble Bees into N. S. Wales from New Zealand, and am anxious to procure ♂ and ♀ of the common British species and varieties for exhibition purposes and probably for figuring. I therefore venture to ask you to send me specimens, as I wish to have fresh and accurately named material. It is somewhat curious that immediately after the publication of some newspaper writings† on the introduction of these Bees, I should observe a true *Bombus* on the wing. This I did to-day for the first time since I let loose a number of impregnated queens. A fine *B. pratorum* flew on to the verandah in which I was sitting, from Lady Macleay's garden at Elizabeth Bay, Sydney, a locality in which I had liberated a number of *Bombi* more than a year ago. After it had sucked its fill from the flowers of an Australian chestnut (*Catanospermum australe*) growing beside my window, I succeeded in knocking it down with my hat, and after examination set it free again. In case you may deem the appearance of this Bee worth a paragraph in the Ent. Mo. Mag., I should be glad to see such a notice. I am of opinion that *Bombus terrestris* does assist in the fertilization of clover, although to a low degree.

Department of Agriculture, Sydney, N. S. W.:
January 5th, 1895.

* Extracts from a letter to E. Saunders.

† This refers especially to a long letter from Mr. W. W. Smith, of Ashburton, N. Z., to the Sydney Morning Herald, suggesting that Humble Bees should be imported from New Zealand.—E. S.

ALEURODES PROLETTELLA, LINN., AND *A. BRASSICÆ*, WALK.:
A COMPARISON.

BY J. W. DOUGLAS, F.E.S.

Adverting to my notes on these reputed species (vol. v, 2nd ser., p. 40) I have now to say that owing to the kindness of Mr. W. H. Bonnewell, I am in possession of living imago, larvæ and pupæ of both. *A. prolella*, taken on the 7th inst. at Coddensham, Suffolk, on the leaves of celandine (*Chelidonium majus*), and *A. brassicæ* on the 14th inst., found on the leaves of savoys (*Brassica oleracea*, var.), and also on others of the cabbage tribe, in his garden at Ipswich. This enables me to state positively that *A. prolella* is indigenous, and it also gives opportunity for the following observations. The species, especially in the mature form, are very much alike, and Signoret says (Ess. sur les Aleurodes) that without study of the larvæ it would have been impossible for him to decide if they were distinct; but after investigating the larvæ he agrees with Réaumur, Walker, Koch and Frauenfeld, that they are really different. On the other hand, Westwood says that *prolella* (*chelidonii*, Latr.) is found on cabbages, evidently deeming *brassicæ* to be the same, and Walker himself adds to his description of *brassicæ* the query that it may be only a variety of *prolella*, and others (without examination) have practically said that it is so.

The points of difference in the perfect insects that are most appreciable are, as Signoret states, that in *prolella* the head is broader than in *brassicæ*, and in front has the form of a crescent, while in *brassicæ* it is narrower, triangular, more produced on to the thorax, and nearly as long as wide. All the wings of *prolella* are white, with two blackish spots, one of them at the end of the median nervure, the other transverse in the middle of the wing, just where the nervure is deflected, is more or less fascia-form. In *brassicæ* the wings are also white, but the dark spots, although in the same position, are differently disposed, the median divided into two parts, one on the median nervure, the other furcating from it towards the anterior margin, the terminal spot also furcate, one branch going upwards and the other downwards.

As to the larvæ, Signoret finds in them the greatest differential characters, especially when they are very recently disclosed from the eggs (*naissant*). Thus he says—

In *prolella* they are oval, with a border of rather long hairs all round, 34—36 in all, of which four of the more important are at the extremity of the abdomen:—in *brassicæ* the newly-disclosed larvæ are more elongated; on the segments of the body no hairs, and only two long ones towards the extremity.

I have not been able to verify these observations for want of larvæ young enough, all that reached me having passed beyond that

first stage, but there is no reason to doubt their accuracy. When more advanced the larvæ present the following characters:—

A. BRASSICÆ.

Oval, convex, pale greenish-yellow, smooth, marginal field narrow; the margin itself without a waxen fringe (but it may have existed at a previous age); the head rounded in front, with several short, hairlike projections; the median dorsal area throughout with a series of long, rather blunt, transverse dentations (resembling the vertebrae of a sole), laterally connected, slightly raised, not extending wholly across the median area. This structure is most perceptible in the adult form, increasing in distinctness as the pupa state is assumed beneath the larval integument, when also the eye-spots become brown and are more evident. The adult form is not described by Signoret.

A. PROLETELLA.

Oval, convex, pale greenish-yellow. smooth, marginal field narrow, but rather broader than in *brassicæ*, on the margin a white waxen fringe, which is deciduous but persistent almost to the last; median dorsal area throughout with a series of small, transverse, parallel ridges, not shortened or blunted as in *brassicæ*, but extending quite across the dorsum, indicating the segments of the insect beneath the integument, these dorsal characters become more distinct as the insect develops; the rest of the surface delicately striate. The head less rounded in front, has there a few short hairs. Eyes ultimately brown. The dorsal structure is not mentioned by Signoret.

The larvæ are gregarious in small companies on the under-side of the leaves of the respective food-plants in the autumn, and some even survive the winter. The perfect insects, abundant up to the middle of November, also appear in the spring and early summer.

I think the divergencies in structure and markings, in addition to the widely different and exclusive food-plants of each form respectively, afford sufficient ground for distinguishing the two species, as several of the best observers have done, as noted above.

153, Lewisham Road, S.E.:
November 15th, 1894.

Postscript, November 26th.—On the 19th inst. I received from Mr. C. W. Dale, Glanvilles Wootton, Dorset, pieces of cabbage leaves to which when they were sent off on the 17th inst. were attached several pupæ of *A. brassicæ*, but during transit the imago form had been developed from them. At first the wings were spotless, but the characteristic spots appeared perfectly in a few days afterwards.

On the 20th inst. I received from Dr. T. A. Chapman, Hereford, some larvæ of *A. brassicæ* on leaves of kale, but they were not so much as half-grown, and at that intermediate state they afforded no special character. If the brood of which they were samples survive the frosts of winter unharmed and become perfected, they may pose as actors in the "Winter's Tale" of insect life.

THE SUPPOSED MARINE *HYDROPTILID*.

BY ROBERT McLACHLAN, F.R.S., &c.

In the "British Naturalist" for December, 1894, Mr. G. Swainson, F.L.S., published an interesting account of a *Hydroptilid* larva, evidently belonging to the genus *Oxyethira*, which he found living on the surface of the open sea off the mouth of the Ribble. This also appears with accounts of other aquatic larvæ in pamphlet form ("Some curious aquatic larvæ," 1894), with some supplementary notes not included in the original publication. Mr. Morton had examined the specimen, and thought he detected differences between the case and that of *O. costalis*, Curt., but considers the presence of the larva in the open sea was due to accident, and that it had been brought down with fresh or possibly brackish water. I am quite of the same opinion, and suggest that if other specimens be found at sea attempts should be made to rear them in both fresh and marine aquaria (a note somewhat to this effect is incorporated by Mr. Swainson in his collected observations). A pelagic *Hydroptilid* would indeed be an acquisition! I call attention to the subject in these pages because it is of far more than "British" interest, and to point out the medium in which the original observations are published. Mr. Swainson's paper is accompanied by figures, and I possess a photograph of the case taken by Mr. A. B. Hoskings, of Lee, London.

Lewisham, London :

February 2nd, 1895.

RECENT EXPERIMENTS ON THE MEANS
OF PROTECTION POSSESSED BY *ABRAXAS GROSSULARIATA*, L.

BY W. F. H. BLANDFORD, M.A., F.Z.S., F.E.S.

The insect most often selected as a test of unpalatability indicated by warning colours has been *Abraxas grossulariata*, on which experiments are recorded by Jenner Weir (Trans. Ent. Soc., 1869, p. 25 : 1870, p. 337) ; Butler (Trans. Ent. Soc., 1869, p. 28) ; Poulton (Proc. Zool. Soc., 1887, p. 191 ; The Colours of Animals, pp. 168, 169, 174) ; and Beddard (Animal Coloration, pp. 149, 153).

It has again formed the subject of a series of observations and experiments by Prof. Plateau, of Ghent, some account of whose paper (Mém. Soc. Zool. Fr., 1894, pp. 375—392) will be of interest.

He summarizes the conclusions of previous observers thus :—

Abraxas grossulariata takes no measures for concealment in any stage, and is sufficiently protected by the indications of unpalatability

afforded by its vivid coloration. It is rejected by European birds, lizards, frogs, tree-frogs and certain unidentified spiders. It is eaten by the toad, insectivorous monkeys and certain exotic birds.

According to his observations :—

1. The caterpillar takes precautions to conceal itself. It is not readily found unless abundant. When half-grown it lies along the edge of the leaf, adapting its body to the irregularities of outline ; in this position the colour is protective. When older, it lies under the leaves or at full length along twigs in the lower part of the bush. When shaken, it falls, rolling in a ring which simulates a patch of bird-dropping, a position maintained for some time.

2. The pupa is mimetic, simulating the abdomen of certain *Ves-pide*. [This has been noticed by Poulton.]

3. The larva is disregarded or rejected by tortoises, by *Coluber ocellapii*, and *Lacerta muralis*. It is seized and rejected by frogs. Of these facts, which agree with previous observations, Plateau prefers to offer no explanation. Newts endeavour to devour the larva, but are apparently unable to penetrate its thick skin, and subsequently reject it, but without signs of distaste.

4. *In no stage has the insect any unpleasant taste.* Plateau was so bold as to masticate a newly-killed larva, and he describes the flavour as being very slight, agreeable, neither nauseous, acrid, acid nor bitter, without after-taste, and resembling that of the sweet almond or cocoanut. The flavour of the pupa and of the abdomen of the imago is similar, but more insipid. On this he remarks : "though the faculty of taste in man does not possess the exquisite delicacy observed in certain *Mammalia*, it is sufficiently developed to show, in accordance with my experiments, which any one can readily check, that the so-called nauseous taste of *Abraxas* does not exist."

5. Spiders usually pay no attention to the larva. They are not afraid of it, but are unaccustomed to feed on caterpillars, and do not recognise the movements communicated to the web. A *Tegenaria* endeavoured to attack the larva, but was unable to pierce its thick skin. *Tegenaria* and *Epeira diadema* attacked and sucked the imago. *Agelena labyrinthica* succeeded in killing it, but was unable to suck so large a prey.

6. Both the larva and imago were devoured by *Carabus auratus*, and the former by species of *Dytiscidæ*. Two *Carabi* were observed to dispute the possession of a larva, which was evidently appreciated.

7. *Abraxas grossulariata* has no special protection against the

attacks of animal parasites. Out of 51 larvæ obtained in May and June, and reared with proper precautions, 22, or 43 % were infested with Hymenopterous or Dipterous parasites. [Similar facts are recorded by Poulton with reference to the "nauseous larva" of *Pieris brassica*, Col. An., p. 182.]

Plateau therefore concludes that *Abraxas grossulariata* does not disregard means of concealment, that it is protected by no special nauseous flavour, and that it is readily attacked under suitable conditions by certain *Vertebrata*, *Arachnida*, *Adephaga* and insect parasites, though not by indigenous birds, reptiles or some amphibia. In his own words, "the results of this research go to prove that, in the case of *Abraxas*, conspicuous coloration does not possess the warning significance which has been attributed to it, and naturalists will do well to apply further experimental tests to other cases in which this explanation has met with a too facile acceptance."

The original paper should be studied in detail by those persons interested in the subject of warning coloration.

48, Wimpole Street, W. :
January, 1895.

Pre-occupied Generic Names in the Lepidoptera.—Perhaps I may be permitted to mention that, so far as British genera are concerned, all those mistaken applications of generic names mentioned by Lord Walsingham (*ante* p. 40), and a large number of others to which he does not refer, will be found corrected, to the best of my understanding and judgment, in my work now passing through the press. Some of the remainder I have also corrected elsewhere. But with regard to pairs of names, such as *Eupselia* and *Eupsilia*, *Pandemis* and *Pandemos*, I cannot admit that they are to be regarded as instances of duplicate use. Generic names are now, for the sake of accuracy and clearness, treated as combinations of letters without meanings, and accordingly exempted from orthographical emendation; hence a difference of a single letter must be held to constitute a distinct name. In cases where a slightly corrected form has become thoroughly established, and there is no possible chance of confusion—as in *Gracillaria*, *Cosmopteryx*, *Micropteryx*, where the original forms are wrongly spelt *Gracillaria*, *Cosmopterix*, *Micropterix*—I see no reason why those who prefer the orthographically correct form should not continue to use it; but such cases are very few.—E. MEYRICK, Elmswood, Marlborough: February 6th, 1895.

Notes on a mass of Cocoons of Aphonis sociella, L.—By the courtesy of Mr. W. P. Blackburne-Maze, of Shaw House, Newbury, I received the other day a well executed photograph of the latter portion of the life-history of this species, showing especially its method of pupation; and as I have had no previous opportunity of examining such a specimen, Mr. Maze has been good enough to forward the mass of cocoons, together with details of great interest, which he allows me to publish.

The bunch of cocoons is of about the size of the egg of a goose, and, roughly, of the same shape. From it were secured last season at least 265 moths. It is light (though it was doubtless heavier when it contained from 200 to 300 living larvæ or pupæ), and has a singular stringy appearance, the cocoons being apparently laid side by side throughout, each being from an inch and a half to two inches long, and much like a short bit of the loosest soft string, or perhaps even more like one of a bunch of sand tubes of an *Annelide*, such as is often to be found on low rocks between tide marks. It might even well be passed over for a lump of earth or an old crushed worsted ball, or an underground fungus, and the finder must be a person of acute observation or he could not have noticed it. It was dug up, the owner tells me, by a nursery gardener at Staple, Kent. On enquiry it appears that there were in that year (1893) fourteen wasps' nests in that garden, and that six of these were situated close round the spot from which the bunch of cocoons was obtained in March, 1894. At that time all the fabricators were in the larva state, the pupal condition not being assumed until May or the beginning of June. The first moths emerged on June 15th, when a considerable number appeared, and smaller numbers from day to day (probably influenced by the weather) till the 29th, when for a week there was a vast increase in numbers; afterwards odd specimens continued to appear until the end of July. Mr. Maze says, "I remember that the greater proportion of the early emergencies were males. They usually commenced to come out at about 5 p.m., and continued till night and often through the night. I do not remember that any emerged in the middle of the day. It was curious to see them struggling out of the middle of the cluster of cocoons, first the head, then antennæ and front legs, and then they rested a little while, till with a final struggle they were freed, ran down the side of the cluster, and rested with their heads up while their wings developed, which only took a short time."

As I have already said, the cocoons are long and closely appressed one upon another, indeed, curved so as to fit round and into any interstice. They are brownish or earth-coloured, but tough in an extraordinary degree, so that it is difficult to detach one, and almost impossible to tear it. When cut open the long cocoon is found to be merely an outer envelope, inside which is the true cocoon, about three quarters of an inch long, thinner, smooth, and rather more papery in texture, but extremely tough, so that the contained larva or pupa has little to fear from even a mouse, while a bird would have no chance at all with it. The pupa is rather slender with very long wing cases, which, with the antennæ and limb cases, are well marked, but closely attached, pale brown; abdomen rather short and blunt, redder brown, as also is the remainder of the pupa.

It does not appear that the bunch of cocoons was attached to, or even close by, any one of the wasps' nests; and the same may I think be said of the similar bunches previously on record, which, in one or two cases, have certainly been found under a stone. This raises a curious question—How did so many larvæ find their way to the same place? It is difficult to understand how something approaching to 300 larvæ can have fed in one wasps' nest, nor why they should do so when there were six nests so close together. But supposing that they did feed in a single nest, would every larva be full-fed and ready to spin up on the same day and at the same moment? If not, how could the later larvæ find their way to the spot chosen by those first full-fed? and supposing that larvæ occupied all the six wasps' nests, how

could they possibly all gather together in this manner? the more obvious conclusion would seem to be that all had fed together, and at the same rate of growth, and together had left the nest to search out a suitable place for pupation. This may be the case, but the aspect of the bunch of cocoons is not that of a great number spun simultaneously, but rather of the regular addition of fresh cocoons to those already made; those in the middle being, apparently, pretty straight and parallel, while those outside are curved round the sides of the mass, occupying every interstice, so as to present the closest possible continuous outer surface. Hence it seems probable that by some fine perceptive faculty, all, as they became full-fed, followed their more advanced brethren, and added their labours to the mass.—CHAS. G. BARRETT, 39, Linden Grove, Nunhead, S.E.: *February*, 1895.

Persistent odour of Bombyx quercus ♀.—Breeding a female *Bombyx quercus*, L., I thought I would try assembling, so took it out with me on July 7th last, but although the weather was everything that could be desired I failed to attract a single male; it was evidently a little too early for them. I did not do any day collecting again until July 15th, on which occasion I left the female at home, not thinking her worth taking out so long after emergence, but I had on the same satchel as on the previous occasion. Almost as soon as I had arrived on my collecting ground it became evident that I was the centre of attraction to a number of male *B. quercus*, which kept flying round me in their usual headlong manner, giving me every opportunity of netting them, and so they continued for some time, and even after I had moved off to a large open common one or two came. I was rather puzzled at first to account for the evident attraction, until it struck me that the cause was my having carried the female in my bag more than a week previously.—A. H. HAMM, Reading: *January*, 1895.

Scydalicus oblongiusculus, Dej., in the Isle of Purbeck.—On July 25th last, when the Rev. F. O. Pickard-Cambridge and I were collecting on the west coast of the Isle of Purbeck, my companion was lucky enough to find under a stone on the beach, just at the foot of the cliff, a single male specimen of the very rare *Scydalicus oblongiusculus*, which was promptly secured. A diligent search was at once made, but no others could be discovered; perhaps in so late a season it was still rather too early to expect to find any more in the perfect state, and we had no opportunity of paying another visit to the locality. It is a great pleasure to be able to record the capture of this beetle in Purbeck, because, although it has been taken on other parts of the Dorset coast line both east and west of Weymouth Bay, it has not, to my knowledge, been previously met with in this neighbourhood. As I am aware that much excellent work among the *Coleoptera* of the Isle of Purbeck has been done during the last few years by visitors staying at Swanage, Bournemouth, and elsewhere, I should be very grateful for any lists, with approximate localities and names of captors if possible, of reliably-identified species taken within its boundaries. Although no Coleopterist myself, I hope at some future time to prepare, on behalf of our Dorset Nat. Hist. and A. F. Club, a catalogue of the beetles known to occur in this district, because it seems a pity that the interesting results of such good work should not be recorded in the annals of the county.—EUSTACE R. BANKES, The Rectory, Corfe Castle, Dorset: *January 7th*, 1895.

Anthicus Wollastoni, F. Waterh.—*Anthicus Wollastoni*, F. Waterh., from St. Helena [Journ. Linn. Soc., Zool., xiv, p. 532 (1879)], the type of which I have recently examined at the British Museum, is a species of *Scydmanidæ*; the name, as I pointed out some time ago,* was long pre-occupied in the genus (King, 1869). The insect has been renamed *A. Waterhousei* by M. Pic (Ann. Soc. Ent. Belg., 1894, p. 273, nota), but his name is no longer required. The species in any case is an addition to Wollaston's "*Coleoptera Sanctæ Helenæ*." The insect formed part of a small collection made by the late Charles Darwin in St. Helena in May, 1836.—G. C. CHAMPION, Woking: January 3rd, 1895.

Scymnus pulchellus in Suffolk.—I had the good fortune to take, during the month of May, 1894, several specimens of the above named very rare beetle, and up to September last I captured no less than 220, all of which I have carded. I took them off the *Pinus sylvestris*, on one particular tree only; there were many trees of the same kind growing in close proximity, but although I searched them all diligently, not one could I obtain from them. The *Scymnus* evidently preferred the south side of this tree, as I could not find one elsewhere. I sent a few specimens to Dr. Sharp, of Cambridge, who informs me by letter, "that I need not be afraid of exterminating the *Scymnus*, as its abundance depends chiefly upon its food supply, and by taking it freely the food will increase, and the *Scymnus* become more abundant than ever." I hope to be able to find it so. I took with the *Scymnus*, although sparingly, *Trinodes hirtus*, a very local species, and *Tiresias serra*.—FREDERICK FOX, Coddanham, near Needham Market, Suffolk: January, 1895.

Coleoptera near Cardiff.—*Aphodius porcus* was abundant in fields by the Taff on September 26th, but vanished in a day or two; *A. sticticus* occurred at the same time, a smaller and darker form than the one plentiful in April. *Pria dulcamara* occurred sparingly with *Cercus rufilabris* on meadowsweet as long as the bloom lasted. *Apion punctigerum* and *A. pallipes* have been plentiful throughout the summer on their respective food-plants, and *A. vicia*, *A. tenue* and *A. ebeninum* occasional. *Orobitis* was common on the dog violet, and I took a good series of *Orthochates* by sweeping a roadside bank, together with a single *Cryptocephalus moræi*. *Anaspis pulicaria* occurred in flowers of the dog rose, *Mordellistena brunnea* (1) on hawthorn, *Ochina hederæ*, *Cissophagus hederæ*, *Phyllotreta tetra-stigma* (1), *Tachinus flavipes* (1), *Eusphalerum*, *Bythinus Curtisi*, and *Chrysomela didymata* (1).—B. TOMLIN, The Green, Llandaff: January, 1895.

Coleoptera at Deal and Dover.—I took a beautiful specimen of *Anthocomus rufus* on a thistle on the sandhills at Deal on September 11th; also a good series of *Nitidula 4-pustulata*, *Necrophorus interruptus* (1), *Aphodius nitidulus* (2): while Dover produced a series of *Liparus germanus* and *Carabus monilis* var. *consitus* in July.—ID.

An overlooked record of the occurrence of *Thermobia domestica* (*furnorum*) in Britain.—When engaged in revising a proof sheet of the Catalogue of Scientific Papers, I came across the title of an article that escaped notice during the discussion

* cf. Ent. Mo. Mag., xxx, p. 86.

on this insect in the last vol. (1894) of this Magazine, and which has probably been generally overlooked. The article is in the Proceedings of the Royal Physical Society of Edinburgh, vol. iv, pt. 3, pp. 187-188 (1878), and is entitled, "On a species of *Lepisma* supposed to be undescribed," by James Simpson. It refers to an insect found in quantity in a large baking establishment in Edinburgh, and is accompanied by a diagnosis (as "*Lepisma* sp.") by the late Dr. Buchanan White. From this diagnosis, and the account of habits given by Mr Simpson, there can be no doubt that the insect in question was no other than our heat-loving friend so often alluded to in 1894, and I think the record, with the exception of Newman's vague account of his *Lepismodes inquilina* in 1863, is the earliest of its occurrence in Europe. Does it still exist in Edinburgh?—R. McLACHLAN, Lewisham, London: Feb. 1st, 1895.

An aberrant (?) form of Stenocephalus agilis, Scop.—On August 8th, 1893, I took a pair of *Stenocephalus agilis* amongst thick grass on the Common near Maidenhead, known as Maidenhead Thicket. The ♀ was an imago, but the ♂ was a nymph, which, however, became an imago a few days after. On comparing these insects with continental examples, I have noticed several differences, but as I have no other British examples, I cannot say whether these differences are merely an aberration in the particular specimens referred to, or whether they are characteristic of our insular specimens generally as distinguished from continental ones. The object of the present note is to call the attention of other Hemipterists to the subject, in the hope that the point may be settled by comparison of other specimens. The differences are as follows. The most noticeable ones are connected with the antennæ, which are much shorter than in the continental forms, but this abbreviation is effected by a proportionate shortening of all the joints, so that the relative length of the joints is the same in both, and hence both agree with the published descriptions of the species. The basal joint is not only shorter but also considerably stouter. The shortening of the 2nd joint has produced a very considerable abbreviation of the intermediate dark ring, the basal and terminal ones remaining of about the same absolute size as in the continental specimens. Similarly in the 3rd and 4th joints, it is the pale part at the base that suffers abbreviation. The shortening of the falcate 4th joint is very obvious. But these are not the only differences. The hairs on the legs and antennæ are much shorter in the English specimens, and this is the case also with those carried by the thoracic punctures, which in the English specimens are hardly noticeable, but are very distinct in the continental ones. Finally, the cheeks are not produced so far beyond the central lobe of the face, the legs are proportionately slightly shorter, and the pale spot at the junction of the corium with the membrane at the end of its inner nerve, is either absent or very indistinct. The continental specimens differ slightly amongst themselves; these differences may perhaps be sexual, the ♂ differing from the ♀ in having shorter hairs and rather longer antennæ. But these differences do not appear in the English specimens. What I should like to know is—1st, are these differences constant in our English representatives of the species; and 2nd, if this is not so, may this shortening of antennæ and hairs, involving as it does a slight reduction in the material used, so to speak, in the construction of the form, be connected with the extreme drought, which, it will be remembered, characterized the summer of 1893,

and which would have the effect of reducing the succulence of the vegetation on which presumably the insects fed, and so of either diminishing their supplies of food, or rendering it more difficult to obtain? If this latter should be the case, might not similar considerations throw light upon closely allied forms of other genera, such as *Scolopostethus* and *Salda*, which differ mainly in the matter of pubescence?—E. A. BUTLER, 39, Ashley Road, Crouch Hill, N.: *January*, 1895.

Method of sugaring meadows, moors, mountain sides, &c.—Proceed as follows:—take a length of sea fishing line (twelve thread water cord will answer the purpose), tie one end securely to a stake driven firmly into the ground; about two feet off this, in the direction you intend to carry the line, drive in a stick with forked top so that about two feet of it are above ground (for portability, a bamboo with bent wire fork is best), then pass the line over the fork, reel off thirty, forty, or more yards, pass it over another forked stick similarly fixed, pull taut, and stake down the other end of the cord about two feet further on, thus forming a miniature clothes line: a few more forked sticks or bamboos should be placed at intervals, between the ends, to act as props. Next have some pieces of cloth or rag cut, 3 by 7 inches is a good size, and pack them one upon another into a suitable tin box. These cloths should be saturated with sugaring compound and flavoured with essence of ginger grass or other seductive perfume. When required for use they should be taken out and fixed to the line at distances of about three yards apart; this may be done by pinning, or better still, by fastening the two corners of one of the short sides by means of "dolls' clothes pegs," which are rapidly put on and taken off.

The great time for working the above is at those seasons when the meadow-grass is in full bloom; but as farmers strongly object to trespassing when the grass is ready for the scythe, it is advisable to find a public footpath, alongside which our sweets may be spread without injury to the crop: due regard should be paid to the direction of the wind, and if rain have fallen during the day or there has been a heavy dew, our chances of success will be better, as the bloom will be less attractive. This plan of sugaring may be used for many purposes besides the above; for operating on downs and mountain sides it should prove invaluable, and ought to attract such species as *Noctua sobrina*, *Pachnobia alpina*, *Pachetra leucophaea*, &c. With sandhills, moors and fens, too, it would no doubt meet with success; and the judicious wafting of our alluring odours might afford the means of sampling the contents of woods and grounds which we are forbidden to enter. Its great advantage over other methods, in use in barren or difficult localities, consists in the ease with which the sugared patches can be found and examined, even in the dark.

I am aware that many collectors have no faith in sugared rags, and, indeed, it has been pretty generally observed that, unless moths are very plentiful and ravenous, they do not care to soil their tarsi with the sticky mixture, but content themselves by sipping from the edge of the bait. To these I would suggest that pieces of clean brown paper should be substituted for rags, a streak of sugar being applied to them after they have been attached to the line; after use they can be left behind as valueless, or, if it is purposed to return to the spot, packed away with the sugared sides facing one another, under a stone or clod in readiness for the next visit. The

basis of the above note was communicated to me by Mr. Ricketts of this town, who told me that it was the secret of the great success of an old professional collector.—H. G. KNAGGS, Folkestone: *January, 1895.*

Pin-forceps.—All who use ordinary pin-forceps know the defects and the consequent danger of damaging specimens with them. They are made so as not to slip down pins when in use; but they do not prevent a pin in their grasp swaying under pressure backwards or forwards. To give thorough firmness of grip to the holders, the *striz* should be cut crosswise, and not (as in the usual pattern of forceps) all in the same direction; it might be advantageous, too, if in one or in both directions they were cut less coarsely than at present. Cross *striz* can easily be cut on the holders by any one with the edge of a chrome-hardened steel knife-sharpener.—A. E. EATON, Biskra, Algeria: *December 31st, 1894.*

Reviews.

THE CABBAGE ROOT MAGGOT: by M. V. SLINGERLAND. Forming Bulletin 78 of the Cornell University Agricultural Experiment Station, Entomological Division. November, 1894.

This bulky Bulletin of nearly 100 pages is a good sample of the work being done under the auspices of the Cornell University, and of the thoroughness with which American Economic Entomologists attack any subject they take up. It will prove of equal value on this side, for the fly (which our author decides should bear the name of *Phorbia brassicae*, Bouché) is equally destructive here, and was no doubt imported into the United States. Those interested must consult the Bulletin for details. Suffice it to say that the author concludes that prevention is better than cure, and the principal preventive recommended is an ingeniously contrived tarred card, so placed as to intercept and hold prisoners the female flies when seeking to oviposit. The injury caused by the fly must not be confounded with what is known as "club root" in cabbages, which is due to a fungus, nor with galls caused by *Ceuthorrhynchus*. As a cure, an emulsion, of which carbolic acid is the active ingredient, is the most recommended.

A HANDBOOK OF THE BRITISH MACRO-LEPIDOPTERA: by BERTRAM GEO. RYE, F.E.S.; with hand-coloured illustrations by MAUD HOEMAN-FISHER. London: Ward and Foxlow. January, 1895.

The author of this projected new work on British *Lepidoptera* is a son of a former editor of this Magazine, whose untimely end his colleagues so greatly deplored. The form and getting up are excellent. No just idea of a work of this nature can be had from a first part, so much of which is necessarily taken up by introductory details. The figures are good. Our young friend, by an unlucky slip, attributes wild carrot as the natural food of the larva of *Papilio Machaon*. It is scarcely necessary to state that *Peucedanum palustre* is the natural and apparently exclusive food in the fen haunts of the insect in this country.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *January 14th*, 1895.—Mr. G. H. KENRICK, President, in the Chair.

Dr. F. A. Dixey, of Oxford, delivered a lecture, entitled, "The Growth of Mimetic Patterns in Butterflies." He firstly showed, with the aid of lantern slides, what he believed to be the course of the development of the *Pierida*, from an original uniformly neutral-coloured ancestor; and then, with the aid of diagrams, showed the probable process of change from a typical *Pierid* to one closely mimicking a *Heliconius*, all the intermediate forms being apparently natural and of use. He also dealt with other details and difficulties of the theory of mimicry, advancing probable explanations.

February 4th, 1895: **ANNUAL MEETING.**—Mr. G. T. BETHUNE-BAKER, Vice-President, in the Chair.

The Annual Reports of the Council, the Treasurer and the Librarian were presented, and the Officers for the ensuing year were elected, as follows:—President, Mr. G. H. Kenrick, F.E.S.; Vice-President, Mr. G. T. Bethune-Baker, F.L.S., F.E.S.; Treasurer, Mr. R. C. Bradley; Librarian, Mr. A. H. Martineau; Secretary, Mr. Colbran J. Wainwright, 147, Hall Road, Handsworth, Birmingham; and other Members of the Council, Messrs. P. W. Abbott and W. Harrison.

Mr. P. W. Abbott exhibited *Vanessa polychloros*, bred specimens, one of which was unusually pale.—COLBRAN J. WAINWRIGHT, *Hon. Secretary*.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: *February 11th*, 1895.—Mr. S. J. CAPPER, F.L.S., F.E.S., President, in the Chair.

Messrs. D. Walker, Herbert Massey, and Harold Milne were elected Members.

Dr. H. H. Corbett, of Doncaster, read "Remarks on some varieties of *Noctuina* from Doncaster," in which he described a number of local forms occurring at Doncaster, illustrated by specimens, conspicuous among which were a fine series of melanic *Calocampa exoleta*, and a fine variety of *Asphalia flavicornis*, in which the dark transverse lines were very strongly marked. Mr. Mason exhibited a long series of *Caradrina ambigua* from Freshwater, a gynandromorphous specimen of *Argynnis Paphia* from the New Forest, a striking variety of *Agrotis agathina*, having the ground colour rose, from Penmaenmawr, specimens of *Cloanthia solidaginis*, *Notodonta chaonia*, and *Aplecta herbida* from Delamere, and a dark series of *Vanessa cardui* bred from larvae obtained at Wallasey. Mr. Sharp exhibited a number of European *Silphidae*, calling attention to the forms *brunnea* and *subrotundata* of *Silpha atrata*, which he considered were distinct species.—F. N. PIERCE and H. B. JONES, *Hon. Secretaries*, 7, The Elms, Dingle, Liverpool.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: *January 24th*, 1895; **ANNUAL GENERAL MEETING.**—T. W. HALL, Esq., F.E.S., Vice-President, in the Chair.

The Council's and Treasurer's Reports were read, and the Officers and Council for the year were elected, as follows:—President, T. W. Hall, F.E.S.; Vice-

Presidents, C. G. Barrett, F.E.S., and J. Henderson; Treasurer, R. Adkin, F.E.S.; Librarian, H. J. Turner, F.E.S.; Curator, W. West, Greenwich; Hon. Secretaries, Stanley Edwards, F.L.S. (Corresponding), and H. J. Turner, F.E.S. (Reporting). Council:—T. R. Billups, F.E.S., C. A. Briggs, F.E.S., J. H. Carpenter, C. Fenn, F.E.S., F. E. Filer, W. Mansbridge, F.E.S., and W. A. Pearce.

In the absence of Mr. Step, the retiring President, Mr. Hall read the Annual Address, which had been forwarded to him.

February 14th, 1895.—T. W. HALL, Esq., F.E.S., President, in the Chair.

Mr. W. Furneaux, F.R.G.S., of Ommaney Road, New Cross, was elected a Member.

Mr. Peach exhibited a specimen of the genus *Xanthia*, said to be *X. ocellaris*, Bork., but which many present considered merely a var. of *X. gilvago*, Esp.; it was from Wimbledon. Mr. Adkin, *Fanessa urticae*, L., var. from Sutherland and N. Ireland, and commented upon the similarity of these to the Japanese form called *V. connexa*, Butl.; he also exhibited series of *Zygæna flitpendula* from Sutherland, taken 2000 feet above the sea: a discussion ensued. Mr. Williams, series of *A. cardamines*, L., with forms which some authorities term *A. Alberti*, and read notes thereon.—H. J. TURNER, *Hon. Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON: *February 6th*, 1895.—Professor RAPHAEL MELDOLA, F.R.S., President, in the Chair.

The President announced that he had nominated the Right Hon. Lord Walsingham, F.R.S., Mr. Henry John Elwes, F.L.S., and Professor Edward B. Poulton, F.R.S., Vice-Presidents of the Society for the Session 1895—6.

Mr. Charles Nicholson, of 202, Evering Road, Clapton, N.E., was elected a Fellow of the Society.

Mr. W. F. H. Blandford made some remarks regarding Mons. Brongniart's donation to the library of his monograph, entitled, "*Recherches pour servir à l'histoire des Insectes Fossiles des Temps Primaires*." Mr. Blandford also called attention to figures of pupæ of species of *Spalgis* (*Lycanida*), in the Journal of the Bombay Natural History Society. A discussion followed, in which Mr. Hampson and Mr. McLachlan took part. Canon Fowler exhibited, on behalf of Mr. C. A. Myers, an unusually fine specimen of *Sphæria Robertsi*, growing from the prothorax of an underground larva of an *Hepialus*, supposed to be *H. virescens*, from New Zealand. Mr. McLachlan said that there was a doubt whether the caterpillar should be referred to this species. Mr. Blandford stated that the French Government had set aside a section of the Pasteur Institute at Paris for the study of entomophagous fungi. Prof. L. C. Miall, F.R.S., and Mr. N. Walker, communicated a paper, entitled, "On the Life-History of *Pericoma canescens* (*Psychodida*)," with an Appendix by Baron Osten-Sacken. Herr Jacoby read a paper, entitled, "Contributions to our knowledge of African Phytophagous *Coleoptera*." Dr. D. Sharp remarked that Erichson began the "*Insekten Deutschlands*" nearly fifty years ago, and as he was engaged on a classification of the *Coleoptera* of the World, he included a considerable number of exotic species in his work. Mr. G. F. Hampson read a paper, entitled, "Descriptions of New *Heterocera* from India."—W. W. FOWLER, *Hon. Secretary*.

NOTES ON THE LARVA, &c., OF *TEPHROSIA EXTERSARIA*.

BY C. FENN, F.E.S.

With regard to Mr. Porritt's interesting article on the earlier stages of *T. extersaria* on pp. 65-67 of this volume, I should be glad if you will allow me to make a few remarks.

As far back as August, 1875, I reared a big brood of this species, and although I quite agree with Mr. Porritt's description of the two forms of the full-fed larva, yet I noticed so many intermediate varieties, that I should only designate them as the extremes of its variation. I was at the time chiefly engaged in studying the larvæ of our *Lepidoptera*, and took careful notes of all constant larval variation, in some species the permanent varieties being very numerous. I append the description I took at the time; also of the pupa and the mode of pupation.

Larva—elongate, generally with slight enlargement or transverse dorsal prominences on the 5th and 9th segments, especially on the latter. Head rounded, not highly polished; two very small anal points. Dull hazel or chocolate-brown, often tinged with green; the sides broadly blotched with blackish-brown or very dark ferruginous, which colour is often continued on the back, and then forms an ill-defined broad bar on each segment. An indistinct series of pale quadrate dorsal spots, one at the termination of each segment, and a row of white or whitish subdorsal dots. 5th and 9th segments always transversely barred with very dark blackish-brown or dark ferruginous. Spiracles black, surrounded with whitish. Head dull greenish, dusted with brown, face paler. 2nd, 3rd and anal segments tinged with green. Ventral surface hazel-brown, with a row of conspicuous whitish or yellowish spots of unequal size, the spaces between the 2nd and 4th segments and between the anal prolegs bright yellow.

Pupa stout and short, anal extremity with a small curved spike. Light reddish-brown, wing-cases, &c., dark grass-green. Segmental divisions and dorsal shade greyish-brown. Spun up under moss or immediately below the surface of the ground; enclosed in a slight silken cocoon mixed with fragments of moss or grains of sand.

Like many of the *Geometræ*, this species is liable to vary in the structure of the larvæ, some individuals being almost without the dorsal protuberances. The same thing occurs in other genera of *Geometræ*, and notably in *Ennomos*.

My larvæ fed up on birch and changed to pupæ at the end of August, 1875. In later years I have repeatedly bred the insect, but generally from larvæ beaten from hazel in September. The moth used to be tolerably common in our home woods, but seems now to have become scarcer.

Eversden House, Burnt Ash Hill, Lee, S.E.:

March 2nd, 1895.

G.

A CONTRIBUTION TO THE HISTORY OF THE SPECIES KNOWN
AS *LITA OCELLATELLA*, STANTON.

BY JOHN HARTLEY DURRANT, F.E.S.; MEMB. SOC. ENT. DE FRANCE.

In Mr. Bankes' valuable paper, dealing with the *instabilella* group of the genus *Lita* (Ent. Mo. Mag., XXX, 127 [1894]), we find the following passage: "*Gelechia (Lita) ocellatella* was first described and named by Mr. Stainton in Ent. Ann., 1859, pp. 151-2, from specimens bred (Ent. Mo. Mag., XIX, p. 252) by Mr. Thomas Boyd from larvae found feeding, in May, in flower-heads of *Beta maritima* at the Lizard in Cornwall. * * The name must, therefore, be retained for this species, of which I have seen in Mr. Wollaston's collection one of the examples taken by him at Porto Sancto (E. A., 1859, pp. 151-2)." There are two descriptions of *Gelechia ocellatella* by Stainton:—

- (1.) Ann. and Mag. N. H. (3 s.), III, 212 (1859);
- (2.) Ent. Ann., 1859, 151-2.

In the Annual we find the description of "*Gelechia ocellatella*, Stainton," but the next species is referred to as "*Gelechia subdecurtella*, n. sp.," on succeeding pages are to be found "*Glyphipteryx cladiella*, n. sp." "*Coleophora salinella*, n. sp.," &c. Why is one followed by "Stainton," and the others by "n. sp."? The reason appears obvious, because this is not the original description of *ocellatella*.

In the Annals, Stainton described this insect from Porto Santo as "*Gelechia ocellatella*, n. sp.;" and in the Annual he wrote: "Except a few specimens taken by Mr. Wollaston at Porto Sancto, this species was entirely unknown, till Mr. Boyd met with it in Cornwall, at the Lizard, last May."

In the Annals we find no reference to the Cornish specimens, while in the Annual both the Madeiran and Cornish specimens are recorded. It appears, therefore, that the name *Gelechia ocellatella* was originally given to the Madeiran specimens, and probably the MS. had been sent for publication in the Annals before the discovery was made that the species occurred also in this country.

In the Annals there is only a Latin diagnosis, while in the Annual the species is described in both Latin and English. The Latin descriptions are almost identical—and personally I have no doubt that the description in the Annals has been used as the foundation of the Latin description in the Annual, with the addition of more exact definition rendered possible by the acquisition of finer specimens. If further evidence is necessary to bear out my contention that the description published in the Annals was *written* first, it will be found in the comparison with allied species.

In the *Annals* *ocellatella* is compared with *costella* and *maculiferella*, while in the *Annual* the comparison is made to *instabilella* and *obsoletella*. No one acquainted with these species could doubt that the comparison with *costella* and *maculiferella* was made at an earlier date than the comparison with *instabilella* and *obsoletella*, which are very closely allied to *ocellatella*.

It seems, therefore, that Stainton's original description was taken from a Madeiran specimen, collected at Porto Santo, and his type should be the specimen in the Wollaston collection in the British Museum, labelled "XXIII."

So far, everything has favoured the contention that the type was from Madeira, and not from Cornwall, but we have now to deal with a curious complication.

The description in the *Annual* was published *before* that in the *Annals*!

Stainton's paper, *Ann. and Mag. N. H.* (3 s.), III, 209-14, was published in March, 1859. The *Entomologist's Annual* for 1859 is dated at the foot of the title "1859," but in the *Ent. Wk. Int.*, V, 88 (1858), is a notice that the *Annual* for 1859 was published December 14th, 1858!

Stainton, in his *Summary of Observations on Tineina*, in the volumes of the *Annual*, writes (*Ent. Ann.*, 1874, 16): "*G. ocellatella*, Stainton, 1859, 151, n. sp., described; occurrence at the Lizard, in Cornwall, V."

It would be difficult to deal with the question, Which is Stainton's type of *ocellatella*? in a way that would satisfy every one, should the Madeiran and Cornish insects be eventually proved to be distinct, but fortunately this is not necessary.

The first reference to the species, now known as *ocellatella*, with which I am acquainted, occurs in a short editorial note (*Ent. Wk. Int.*, IV, 128 [17, VII, 1858], presumably by Stainton), entitled, "Treasures in Cornwall," where we read, "Mr. Boyd has spent a few weeks in the neighbourhood of the Land's End, and has brought home a number of interesting novelties: not the least curious is a *Gelechia*, only hitherto detected by Mr. Wollaston, in Madeira."

The next reference to this species is Boyd, *Ent. Wk. Int.*, IV, 143 (31, VII, 1858): here, under the name *Gelechia ocellatella*, we find the species fully described, and as this is the earliest *published* description, the species must in future be known as *Gelechia ocellatella*, Boyd.

The following is Boyd's description :—

"A few days afterwards I took the first specimen of a *Gelechia*, which Mr. Wollaston had met with in Madeira, and for which the name of *ocellatella* has been proposed : the colour is reddish-brown, with a broad, yellowish-brown streak along the inner edge, ending in an ill-defined fascia at the anal angle ; there are several black dots, but they do not seem very constant, except one in the fold, about one-third of the wing distant from the body, and another a little above and beyond this ; these are generally surrounded by pale rings, and have an ocellated appearance : beyond the middle, on the disc, are two other black spots, which frequently unite and form a V. I did not meet with it again till the 29th, when I found it flying rather freely about some wild beet, on the top of one of the large rocks near Kynance, but it is difficult to take in good condition, as it flies a very short distance, and darts among the roots and dead leaves the moment it is disturbed."

The synonymy of this species will, therefore, be as follows :—

GELECHIA OCELLATELLA, Boyd.

Gelechia, sp. (Stn.), Ent. Wk. Int., IV, 128 (17, VII, 1858) ; *Gelechia ocellatella*, Boyd, Ent. Wk. Int., IV, 143 (31, VII, 1858) ; Stn., Ent. Ann., 1859, 151-2 (14, XII, 1858) ; Stn., Ann. and Mag. N. H. (3 s.), III, 212 (III, 1859) ; then follow the references cited by Bankes (Ent. Mo. Mag., XXX, 81 [IV, 1894]), to which should be added : *Lita ocellatella*, Wlsm., Tr. Ent. Soc. Lond., 1894, 537, 544.

Merton Hall, Thetford :
December 10th, 1894.

COCCIDS PREYED UPON BY BIRDS.

BY R. NEWSTEAD, F.E.S.,

CURATOR OF THE GROSVENOR MUSEUM, CHESTER.

To do justice to this subject, I think it only right that the entire contents of each stomach, found to contain *Coccidæ*, should be given ; as it is only by such means that an adequate idea may be obtained as to whether the birds were able to obtain other, and what we should consider more nourishing, food. I have pleasure, therefore, in enclosing the result of my *post mortem* examinations in winter of two species of birds (*Parus ceruleus* and *Acredula caudata*) taken from my report to the Cheshire County Council on "The Amendment of the Wild Birds Protection Act."

The finding of *Coccidæ* in birds' stomachs is certainly of very great interest and economic importance. I am not quite sure, but believe that hitherto nothing of the kind has been recorded ; if so, the matter should be of some value.

I have records of three species of *Coccidæ*, viz., *Aspidiotus zonatus*, Fd., *Mytilaspis pomorum*, Bouché, and *Asterodiaspis quercicola*, Bouché ; and in my MS. notes there is a record of an immature ♀ *Lecanium*, also from the stomach of one of the *Paridæ*.

Aspidiotus zonatus may be quite as eagerly sought for as the *Asterodiaspis*, but it is a much rarer species. High Legh is the only known habitat in Cheshire, and this locality is many miles from where the blue tit (*Parus cæruleus*) had no doubt taken the insects. These birds must have keen eyes to distinguish this species, for it is well protected both in colour and texture. The central red-brown speck in the scale is the only indication of its presence, and altogether it may be considered the best protected of any of our British *Coccidæ*.

Mytilaspis pomorum.—Although only four specimens of this injurious species were found, I am fully convinced that it is readily devoured by birds. Many times have I seen, with the aid of field-glasses, the tree-creeper (*Certhia familiaris*) collecting this species during winter and spring; and from what I have seen of the marsh tit (*P. palustris*) and the blue tit (*P. cæruleus*), they, too, are fond of the species. One has only to examine a tree infested with this "scale" to find, in very many instances, only the white mealy outline of the insect on the bark. To get such a result the scale must be removed by some agency, and I am pleased to credit it to our feathered friends, the useful tits and the tree-creeper.

Asterodiaspis quercicola.—I firmly believe this species is eagerly sought for by various species of tits. Here, in Cheshire, the characteristic little depressions made in the twigs of the oak by this species are to be found in thousands. Rarely is it that the *Coccids* are found in them. This fact, for many years, led me to suspect the birds had taken them. It was not until 1894 that the matter was placed beyond doubt. The May record is of the greatest interest, as at that time there would be a good selection of bird-food. It proves, therefore, that the species is a selected item in the dietary of two species of birds.

Lecanium genevense.—This was one of the earliest species which came under my investigation when first I became a student of the *Coccidæ*. At that time a large colony of these insects infested a short thorn hedge, growing hard by a city foot-path leading to this Museum, where they afforded every opportunity for investigation. The hatching of the larvæ, the hibernation of the young ♀, and the emergence of the ♂ in May, went on without any apparent losses. But when the females had become fat and plump, and ready to lay their eggs, then it was that they began rapidly to disappear, until very few remained. At first I could not account for the loss, but one day a small flock of sparrows (*Passer domesticus*) were busily engaged in the hedge-row, and as I saw them subsequently in the same place I

attributed the disappearance of the *Coccids* to these omnivorous birds. A *post mortem* examination would have settled the matter, but the birds could neither be trapped nor shot in such a public thoroughfare.

It is of interest also to know that *many* specimens of *Phyllotreta undulata* and *P. nemorum* were found in *four* stomachs of the tree-creeper.

Summary of contents of nine stomachs of blue tit and long-tailed tit examined:—*Aspidiotus zonatus*, many; *Asterodiaspis quercicola* numerous; *Mytilaspis pomorum*, a few; larvæ of *Diptera*, many; small moths and larvæ, many; *Coleoptera*, various, chiefly weevils; *Cynips*, many; and bud-scales. These occurred in different proportions in the various stomachs.

Chester: *March 9th*, 1895.

ARE THE ANTENNÆ OF THE PUPA FREE IN THE FAMILY *TINEIDÆ*?

BY T. A. CHAPMAN, M.D., F.E.S.

The species of *Tineidæ* of which I have examined the pupa have not been numerous, but are, I think, sufficiently representative; I much want further species. I think there are some species still placed in *Tinea* that are not quite with the others. I accept *boleti*, *pallacentella*,* *biselliella*, *ochraceella*, F., as true *Tineæ* (*Tineidæ*). In these, and some others, the antennæ appear to be free only in such species, and so far as they extend beyond the wings. The question as to whether they are free otherwise is not either so easy to decide, or in one aspect, so important as at first it may appear. They lie in a definite groove between the wings and the legs, from which, however, the empty antennal case becomes quite free on dehiscence; before dehiscence they can also be separated from this groove without very great violence. Still it appears to me that there is some actual adhesion between the opposed chitinous surfaces in the groove, and that in lifting the antennæ out of the groove, this adhesion is broken down and the antenna is separated and not merely lifted.

It is to be noted that *Tinea* is close to *Adela*, and *Adela* to *Micropteryx*, in which all appendages and segments are free; indeed, the three groups were all placed in *Tineidæ* by Stainton, and they are still, I dare say, so placed by many. Stainton also placed with them *Talæporia*, F., which are not at all nearly related, and which are close, or more truly belong to, the *Psychidæ*.

Firbank, Hereford: *March*, 1895.

* In connection with this, see Mr. Bradley's remarks at p. 97 of this No.—Eds.

NOTES ON SOME BUTTERFLIES OF TENERIFE (PART II).

BY SIDNEY CROMPTON, F.E.S.

A few words about those butterflies which are representative of European species. Some may be dismissed at once with the remark that they are identical with the same species in Europe; among these are *Pieris rapæ*, *P. Daplidice*, *Aporia cratægi*, *Lycæna bætica*, *Chrysophanus Phlæas*, *Thecla rubi*, *Danaïs Plexippus*, *Argynnis Lathonia*, *Pyrameis Atalanta*, *P. cardui*, and *Hesperia Actæon*. Perhaps it may be remarked that *P. Daplidice*, which is so rare in England, and considered one of the greatest entomological prizes, is common all over Tenerife, from March till December. It was very abundant in the winter of 1892-3, and 1894. The larva feeds on the cabbage. With regard to *A. cratægi*, though it has never been netted or seen by me in the island, we have it on the authority of Mrs. Holt White that it has been caught here, though not by herself.

As I said before, those specimens of *C. Phlæas* caught in the Tenerife are identical in characters with those caught in England, though I have in my cabinet here some ♂s with the hind-wings quite black, and the black spots very large.

By far the most interesting species in Tenerife are *P. Callirhoë*, *P. Huntera (virginiensis, Drury)*, and the *Coliades*. I will take them in order:—

PYRAMEIS CALLIRHOË, F.

This insect expands from two and a quarter to two and half inches, some of the specimens caught in the Tenerife being larger than *P. Atalanta*, to which it approximates very closely in general appearance. It is much commoner here than *P. Atalanta*. The chief point of divergence between the two is, that in *P. Callirhoë* the red stripe on the fore-wings is larger and more indented, and of a bright, deep, blood-red colour. The white apical markings are neither so large nor so numerous as in *P. Atalanta*, and there is an absence of the blue spots on the apex of the fore-wings. The under-side also differs from *P. Atalanta*, the pale yellow costal patch in the hind-wings being very indistinctly defined. The habitat of the larva is similar to that of *P. Atalanta*, and there is no appreciable difference between the chrysalis of the two species. Mrs. Holt White says in her book (Appendix C) that, in rearing *P. Callirhoë* several specimens were observed to emerge from the chrysalis with bright yellow instead of red markings on the margins of the hind-wings. She also remarks that the white markings on the fore-wings varied. According

to Lang (*Rhopalocera Europæ*, vol. i, p. 178), *P. Callirhoë* was imported into the Canary Islands from South Portugal or Andalusia. Kirby remarks, in his review of Mrs. Holt White's book (*Nature*, February 22nd, 1894), that it is East Indian in its affinities. It is certainly found in China (Leech, *Butt. of China, Japan, and Corea*, i, p. 252) and in Northern India (Nicéville, *Butt. Ind.*, ii, p. 229, pl. xviii).

PYRAMEIS HUNTERA, F.

Not very rare in Tenerife, but very local; great numbers have been caught at a village called Tacoronte.

Gundlach, in his "Contribucion á la Entomologia Cubana" (1881), pp. 41-2, says concerning this insect, "No he notado diferencia de la *P. cardui*. Los dos sexos son iguales y sobre la diferencia de la especie precedente véase lo dicho en *P. cardui*." Side by side with Gundlach's words, let me quote Abbot and Smith (*Natural History of the rarer Lepidopterous Insects of Georgia*, mdccxcvii, vol. i): "This had long been considered as the same species with *P. cardui* till Fabricius separated them, and their metamorphoses confirm his opinion. It is one of those instances of American insects, like several plants of that country, being very similar to those of Europe, but not the same." Mrs. Holt White says (pp. 56-7): "A scarce variety in Tenerife * * * similar in colouring to the *cardui*, but somewhat brighter;" but surely there is considerable differentiation in the black markings of *P. Huntera* being fewer, the anterior-wings more rounded at the apices, and the fore-wings having a deeper pink on the under-side than *P. cardui*. Also the two large eye-spots near the hind-margin of the hind-wings are very large and conspicuous.

The flight of *P. cardui* in Tenerife is much more rapid than that of the English specimens.* I notice that the Rev. Douglas Timins says the continental *P. cardui* fly much more strongly than in England ("Note of a Month's Collecting at Cannes," *Trans. Ent. Soc. Lond.*, 3rd series, vol. ii, pt. v, p. 102).

COLIAS EDUSA, Fab.

Those specimens of *C. Edusa* caught in Tenerife are similar to the English, but much brighter in colouring, and larger in size, some

* I ask whether this is real or illusory? and also whether the remark refers to specimens that have presumably migrated or not? I may be wrong, but it has always seemed to me that immigrant examples of *P. cardui* in this country fly in a much more headlong manner than those undoubtedly recently bred here. This occurred to me forcibly during the remarkable immigration of the species in the cold, cheerless summer of 1879. These immigrants are usually much worn, and the absence of the pigment-laden scales would render them lighter on the wing, independent of the unknown impulse which apparently urges them forward. The females in these examples have possibly mostly laid their eggs long before arriving on our shores, and this also would give them additional lightness. The matter is suggestive, and worthy of further consideration.—R. MCLACRLAN.

in my cabinet, which were caught near Santa Cruz, measuring two and three-quarter inches across the wings. There is great diversity in this species, some of the insects netted by myself and those netted by my colleague Mr. H. Mordey Douglas, differing greatly in point of size, colouring, and width of the black hind-marginal border, and in the size and colouring of the orange discoidal spots.

The ♀s, in my collection in particular, show great diversity from the ordinary type of *C. Edusa*, hardly two specimens being exactly alike, the chief difference being in the great size and conspicuous dentation of the yellow makings on the black border of the hind-wings. I have both *C. Helice* and *C. Hyale*. I have lately acquired by purchase the pigmy or dwarf specimen which belonged to Don Roman Gomez (*vide* Mrs. Holt White, p. 37), measuring less than an inch. Except in its diminutive size, it presents no variation from the ordinary form of *C. Helice*. There is a ♂ *C. Electra* in the collection of Mr. Trimen at Cape Town, expanding only 1 inch 5½ lin., and there is a ♀ in the South African Museum only 1 inch 4 lin.

Both *C. Hyale* and *C. Helice* are very rare in Tenerife. I have some dimorphic forms of ♀, with the orange-yellow ground-colour replaced by dusky greyish-white, the greater part of the hind-wings being suffused with grey.

I have also captured *C. Electra* in Tenerife, an African species of the genus. *C. Electra* (Linnæus) is very nearly related to the common European *C. Edusa*; the distinguishing characteristic is the deeper ground-colour, and the pink lustre which the lower wings display in certain lights, and the hind-marginal band of the lower wings is blacker and better defined. Indeed, *C. Electra* is very similar to *C. Fieldii*, Ménét.

I may here mention (though, perhaps, this is a digression from the real subject of this paper) that to me the whole genus of *Coliades* seems the most interesting and instructive generic division of *Rhopalocera*. It comprises about fifty species, and they are nearly all characteristic of Palearctic and Nearctic regions. Not only are they interesting from their habits, and the lights thrown on biology and geographical distribution, but the species make up a genus of singular and chastened beauty, running through the gamut of oranges and yellows. They are chiefly found in the northern regions, while there are some of these northern species that are literally arctic. One species, *C. Hecla*, has been taken as far north as latitude 83° N. It is generally thought by naturalists now that these arctic *Coliades* are survivors of the circumpolar fauna in ante-Pliocene times,* when there existed in these regions a milder and more uniform climate, and a luxuriant vegetation of tall deciduous trees and evergreens.

* No fossil remains of insects appear to have been found in the Pliocene formation (Wallace, *Geographical Distribution of Animals*, vol. i, p. 166); but in the lower Croatian Miocene there is a fossil butterfly showing all the wing-nervures and nervules—supposed to be either a *Janonia* or a *Vaneana*.

Those species of *Coliades* that are found in intertropical parts are chiefly confined to high altitudes, and are quite alpine in their habitat. In the tropics themselves the *Coliades* are only found in the high Andes, Mr. Ed. Whymper in his recent expedition having discovered a new species, named by Godman and Salvin *C. alticola*. A description of it will be found in the Appendix to Mr. Whymper's book, vol. ii, p. 107. It was the highest insect of any kind obtained, and was collected between 12,000 and 16,000 ft. Indeed, it is the highest-flying butterfly in either North or South America. In Europe thirteen species of *Colias* are found, two species being found in Great Britain, but they are very fitful, irregular, and capricious in their appearance.

GONOPTERYX CLEOBULE, Hb.

This is undoubtedly quite a distinct race of *G. Cleopatra*, in that the ♂ has the whole of the fore-wings suffused with orange, whereas in *G. Cleopatra* only two-thirds of their area are occupied by the brilliant orange colour. In shape, too, there is a difference between these two forms, as the angular projection of the wings in *G. Cleobule* is less acute, or (to quote Mrs. Holt White) "of a squarer form, and having no decided point at the angle of the hind-wings."

G. Cleobule is quite peculiar to the Canary Islands.

Although Mr. de V. Kane dissents (in the case of *Vanessa Levana-Prorsa*) from Dr. Weissmann's theory that a migration southwards of certain species of *Rhopalocera* from the less congenial climates of Northern Europe have modified their size and colouring, nevertheless I venture to think that, in the face of evidence such as that afforded by *G. rhamni*, *G. Cleopatra*, and *G. Cleobule*, the fact is undeniable. Surely we must ascribe the increased size, strength, and intensified colour of *G. rhamni* in its journey southwards, to Madeira and to the Canaries, to the influence of increased warmth and sunlight, and luxuriant food? Certainly it is a most remarkable zoological phenomenon, and it is difficult for me to see how else the considerable differentiation displayed by *G. rhamni*, *G. Cleopatra*, and *G. Cleobule* is to be explained.

M. Boisduval says *G. rhamni* and *G. Cleopatra* are identical, since he has reared both from the same batch of eggs. Certainly these two forms fly together.

Salamanca, Santa Cruz, Tenerife :

December, 1894.

[The Canary Islands are now so much frequented by our countrymen as a winter resort as to render observations on the butterflies by a resident, of special interest, even although some of the general remarks contain no information that is new.—EDS.]

NOTES ON CERTAIN ASIATIC *HESPERIIDÆ*.

BY J. EDWARDS, F.E.S.

I.—The Genera *CAPILA* and *PISOLA*.

Moore described these genera on page 785 of the Proceedings of the Zoological Society of London for the year 1865, placing one species in each genus, and purporting to describe both sexes in each case. In the Journal of the Bombay Natural History Society for 1892, pages 347–350, de Nicéville discusses these genera at some length, and asserts that what Moore describes as the female of *Capila Jayadeva* is the true male of *Pisola Zennara*, and what he (Moore) gives as the male of *Pisola Zennara* is the true female of *Capila Jayadeva*. If we adopt this view, and judging from specimens of both species, and the fact that it is now known that several species of these large Hesperiidæ have dissimilar, white banded females, there is no reason for doubting its correctness, we have two genera founded on the opposite sexes of the same species, and strictly speaking both names should accordingly fall. I would, however, propose the following as a reasonable mode of dealing with the matter. The two genera being synchronous in publication, and there being no necessity for more than one generic name to include the constituents of both, let the name *Capila*, which occurs first in order, be retained for that purpose. I would retain the name *Jayadeva* for the insect described by Moore under that name and its real female, which is the same as Moore's *Pisola Zennara*, male; and I would apply the name *Moorei* to the insect which Moore described as the female of his *Jayadeva* and its real female, which latter is the same as Moore's *Pisola Zennara*, female. The nomenclature would therefore stand thus:—

CAPILA, Moore.

1. *C. Jayadeva*, Moore.
♀ = *Pisola Zennara*, Moore (♂).
2. *C. Moorei*, nom. nov.
♂ = *Capila Jayadeva*, Moore (♀).
♀ = *Pisola Zennara*, Moore (♀).

Watson, in his "Proposed Classification of the *Hesperiidæ*" (P. Z. S., 1893, pp. 3–132), redefines the genus *Pisola*, Moore, taking as his type the only species placed in the genus by its author, namely, *Zennara*; and he goes on to say that the male of *Pisola Zennara* has no long tuft of hairs on the hind tibiæ. But in a paper on the Asiatic Genera of *Hesperiidæ*, of which he has kindly sent me the proof, and which will shortly appear in Journal of the Bombay Natural History

Society, he admits that the insect which he treated as a male in re-defining Moore's genus was really a female, and states that it is therefore necessary to take a fresh character on which to separate the two genera. He gives this fresh character as follows:—

Male, inner margin of fore-wing longer than outer margin..... *Pisola*, Moore.

Male, outer margin of fore-wing longer than inner margin..... *Capila*, Moore.

In his "List of the Butterflies of Sikkim" (Gazetteer of Sikkim, Calcutta, 1894, p. 176, No. 512) de Nicéville records and remarks upon "*Pisola Zennara*, Moore," of which he says that he possesses five "males;" apparently overlooking the fact that on his own showing no male insect was described by Moore under the name of *Pisola Zennara*.

Why two such authoritative writers as de Nicéville and Watson should make two genera for the two male insects which have hitherto been known as the male and female of *Capila Jayadeva*, Moore, is not clear. Here we have two insects so similar in structure and appearance, that for more than a quarter of a century entomologists were content to regard them as sexes of the same species; but now, because there is a trifling difference between them in the relative length of the outer and inner margins of the fore-wing, in other words, because the fore-wing of one is a little more pointed than that of the other, they are each to be placed in a separate genus.

II.—*ERIONOTA ACROLEUCA*, Wood-Mason and de Nicéville, and E. GRANDIS, Leech.

Mr. de Nicéville, writing of *Erionota acroleuca*, W.-M. and de Nicé., in his before-mentioned List of the Butterflies of Sikkim, p. 181, No. 567), says, "Very rare. I obtained one example, Mr. Otto Moller two only in Sikkim, after many years' assiduous collecting. It occurs also in Western and Central China, and has been named '*Hidari*' *grandis* by Leech."

I take this opportunity of pointing out that the *Plesioneura grandis* of Leech [Entomologist, xxiii, p. 47 (1890), *Hidari grandis*, Leech, Butt. China, &c., p. 633, pl. xxxix, fig. 13 ♂ (1892—1894)], is not the same as the *Hesperia acroleuca* of Wood-Mason and de Nicéville (Jour. As. Soc. Beng., 1881, p. 260). The latter, of which there are in Mr. H. J. Elwes' collection, now under my charge, two specimens from the Andaman Islands, one of them labelled *acroleuca* by Mr. de Nicéville, is for me a local form of *Erionota thrax*, distinguished by its smaller size, and a tendency to a completely rhomboidal form of the pale spot in cell 3 of the fore-wing above. The pale shade in the apex of the fore-wing above is present in varying degrees in

many specimens of *E. thrax*, and I have before me a specimen from Pulo Laut which agrees in all essential particulars with *E. acroleuca*, save that the pale spot in cell 3 of the fore-wing above is sublunate instead of rhomboidal; there is nothing in the male genitalia of *E. acroleuca* by which it can be distinguished from typical *thrax*.

E. grandis, Leech, may at once be distinguished from any form of *E. thrax* by the pure white colour of the pale spots on the fore-wing; it is further distinguished from the form *acroleuca* (which its male resembles in size and in the pale shade on the apex of the fore-wing above) by the irregularly roundish non-rhomboidal shape of the pale spot in cell 3 of the fore-wing above. The diagnostic features of *E. grandis* are not made sufficiently clear either in the description or the figure; the former makes no mention of the colour of the pale spots on the fore-wing above, and in the latter the pure white colour of these spots is not sufficiently accentuated.

Under these circumstances the geographical distribution given by Mr. de Nicéville for *Erionota thrax*, as represented by the form *acroleuca*, will require modification; and in this connection it may be well to mention that amongst some *Hesperiidæ* sent to Mr. de Nicéville for names I find a specimen of a *Gangara* from Perak, distinguished from *G. thrysis* by its smaller size and the presence of a small sharply defined cream-white spot near the base of cell 7 in the hind-wings beneath, labelled "*Erionota acroleuca*, W.-M. and de N.," in Mr. de Nicéville's handwriting.

Colesborne, Cheltenham :

February, 1895.

THE GENERA *CRYPTOHYPNUS* AND *HYPNOIDUS*.

BY G. C. CHAMPION, F.Z.S.

In the Ent. Nachrichten, xix, p. 308 (1893), Dr. E. Bergroth remarks that the genus *Cryptohypnus*, Latr., is still confounded with *Hypnoidus*, Schiödt. He gives the characters for them as follows :—

Cryptohypnus : Epimera mesothoracica coxas attingentia. Acetabula coxarum mediarum itaque e mesosterna, epimeris mesothoracicis ac metasterno formata. Elytra prothoraci innata.

Hypnoidus : Epimera mesothoracica coxas non attingentia. Acetabula coxarum mediarum tantum e mesosterno et metasterno formata. Elytra prothoraci non innata, sed superposita.

Thomson (Skand. Col., vi) makes a similar division, and he places *Hypnoidus* (= *Negastrius*, Thoms.) in a different group of the *Elateridæ*.

C. maritimus, Curt., and *C. riparius*, Fabr., belong to *Cryptohypnus*; and *C. sabulicola*, Boh., *C. pulchellus*, Linn., *C. 4-pustulatus*, Fabr., *C. dermestoides*, Herbst, and *C. 4-guttatus*, Lap., to *Hypnoidus*.

It may also be noted that in *Cryptohypnus* the prosternal sutures are straight, parallel, or very little convergent posteriorly, as in Dr. Horn's Group 1;* and in *Hypnoidus* the prosternal sutures are arcuate and very evidently convergent posteriorly, as in his Group 2.

Dr. Horn [Ent. News, v, pp. 6, 7 (1894)] states that the North American species divide into two genera in precisely the same way, either by the form of the prosternal sutures, or by the characters indicated by Dr. Bergroth. The two genera should therefore be retained as distinct.

Horsell, Woking:
March 15th, 1895.

Xanthia ocellaris, Borkh., in Sussex.—*Xanthia ocellaris* appears resolved to make itself at home with us. Another specimen has been sent up for inspection by my friend Mr. W. H. B. Fletcher. It was taken from a street gas lamp at Bognor, Sussex, on the night of October 7th last by Mr. H. L. F. Guernonprez, of that town. The specimen is a male, considerably worn, of the more handsomely coloured and richly banded typical form of the species, and is the second specimen captured in England, which I have seen, of this form, the remainder being, as before stated, of the dark unicolorous variety *lineago*. There is yet another striking variety, of which specimens exist in the National Collection at South Kensington, far paler in colour, yellowish-brown, with hooked apex, white dot in the renal stigma, and white nervures beyond the middle of the fore-wings. It is labelled *palleago*, as received from the continent. If this is correct, *palleago* is a form of *X. ocellaris*, and not of *X. gilvago*, as indicated by Staudinger. So far as I know, this variety has not yet been observed with us.—CHAS. G. BARRETT, 39, Linden Grove, Nunhead: March, 1895.

"*A hunt for Phorodesma smaragdaria*."—I find with regret that the article by Mr. Auld upon the larva of *Phorodesma smaragdaria* in the March number of this Magazine has given keen annoyance to a much esteemed correspondent. Mr. George Elisha writes:—"I am simply amazed that in these matter-of-fact times we should have a veritable Rip Van Winkle arise in our midst to tell us this old story, which we all know so well, as something new; or is it that we live in such very fast times that the discovery of this particular larva about eight years ago, when its whole history was made known, has already become ancient history, and the true facts lost in the dim past, that we are treated to this mythical anecdote of the 'beetle catcher and his friend,' which I need hardly say existed only in the imagination of the narrator? I must confess that I have a grievance in this anecdote; and the

* Trans. Am. Ent. Soc., xviii, p. 2 (1891).

memory of my late friend Mr. Machin, induces me to point out that a full and correct account of the discovery and habits of this larva is to be found in the Transactions of the Entomological Society of London for 1886 (page 465), and a partial account in the 'Entomologist,' for 1884."

Mr. Elisha is too modest to say that these papers are by himself: that in the "Transactions" being very complete.

It is very certain that history does not actually preserve *any* record of any conversation which took place on the discovery of the larva, and it may readily be conceded that Mr. Auld has been a little misled by a too exuberant imagination. Our deceased friend Machin was the first to discover the larva in this country, and he decidedly was not a beetle catcher—indeed, I believe, that he was carefully searching for cases of the extremely rare *Coleophora vibicigerella* when this interesting larva presented itself to his gaze, and his open-handed liberality was illustrated by the fact that he, as soon as possible, sent larvæ to me, at King's Lynn, from which the series in my cabinet was raised. So liberally was this beautiful insect scattered abroad into other collections by him and by Mr. Elisha that rueful looks came in time to be cast upon early specimens, for which fancy prices had, in some cases, been paid.—ID.: *March 11th*, 1895.

A small form of Nonagria lutosa.—Through the kindness of Mr. E. Dembski, of Birmingham, I have had an opportunity of examining a moth, which was taken by him at light in Lincolnshire a good many years ago, which he has believed to be a distinct species, and which he desired to name in honour of an old friend. Unfortunately for this kindly intention the moth proves to belong to a well known species, though to a variety of that species which apparently is far from being so generally recognised. To this last conclusion I am driven by the fact that this form is one of those which come to hand, to be named, by no means unfrequently. It is a comparatively small race of *Nonagria* (*Calamia*) *lutosa*, Hüb. (*crassicornis*, Haw.). In its ordinary form, as is well known, this species is very nearly the largest in the group, ranging from about 1½ inch to over 2 inches in expanse of wings. Mr. Dembski's specimen, however, is only about 1½ inch in expanse—about the size of *Leucania obsoleta*, and not very unlike that species—and his opinion of its specific distinctness by no means an unreasonable one. In my own cabinet are specimens precisely resembling it, with others of graduated sizes to that of the type. These were taken along the banks of ditches in Norfolk, and seem always to occur where there is but little of the food-plant, common reed (*Arundo phragmites*), and that rather small in size; full-sized specimens occurring with them, but being more frequent in the neighbourhood of large reed beds and the banks of rivers. The small specimens, like the large, often have their whitish-brown fore-wings tinged with reddish, more rarely clouded along the nervures with grey; they have precisely the same indistinct, curved row of black dots, and in the hind-wings usually the same faintly indicated row of grey dashes. Of the identity of the two forms there can be no doubt.—ID.: *March 16th*, 1895.

Aphomia sociella.—When I was a boy (somewhere in the forties) I found a nest of the pupæ of this species; it was attached to the under-side of some planks which formed the top of the lower story and the floor of an upper story of a low dilapidated building that had been one of the properties of an old tea garden which

had been closed for years. The building spanned an artificial moat which had run dry, and in which I found (then or at some other time) nests of the water wagtail. The place was overgrown with scattered trees and shrubs that had run wild. About 150 moths emerged, and I well remember that the males, all, or nearly all, emerged before the females. The nest required considerable force to detach it from the planks. It was, I think, larger than the one referred to by Mr. Barrett (Ent. Mo. Mag., March, 1895, p. 72), and was of very irregular shape; but this can perhaps be verified, as I gave the nest to the British Museum, where it was exhibited in a table-case, and I saw it there many years afterwards.—F. MERRIFIELD, 24, Vernon Terrace, Brighton: *March*, 1895.

The food of the larva of Aphomia sociella.—I have had the sponge-like masses of empty cocoons of this species brought me several times, and once had a full one, from which I bred many moths; I have never been able to find in these any *débris* of the food, whatever it was, and so am perhaps hardly entitled to criticize Mr. Blackburne-Maze's suggestion that they feed in wasps' nests. I have three times, however, seen the place whence the cocoons were taken—twice from under a heap of stones that was much more suitable for a nest of bees than wasps, and once from amongst wood that would have suited either; the places had been much disturbed in each case, so that I attached no importance to finding no suggestive material (moss, &c.). The chief reason, however, that makes me adhere to the accepted opinion that the food is humble bees' nests is, that the *débris* of these contains much waste bee-bread and thick silken cocoons that would form suitable pabulum for the moth, whilst the waste material of a wasp's nest contains very little silk, much wasp larval excreta, and a trifling weight of wood paper, practically little or no nutritive material. The *Dipterous* larvæ that inhabit wasps' nests appear to live on damp excrementitious material that seem quite unsuitable for a Lepidopteron.—T. A. CHAPMAN, Firkbank, Hereford: *March 5th*, 1895.

Notes on Tinea pallescentella.—Early in October, 1888, odd specimens of *Tinea pallescentella* flew into my place of business at Birmingham, and wishing to learn something about its habits, I traced it to its home, the cellar of a boot warehouse. On descending the cellar with a light, the moths were seen on the walls in large numbers, scuttling in all directions into nooks and crannies, but seldom attempting flight. They varied exceedingly in size, some of the females being very large, measuring nearly an inch across the wings. Their colour varied from unicolorous pale grey to dark grey, with dark brown markings, and two striking pale yellow forms were taken.

In the hope of working out its life-history, many excursions were made during the next few months into the cellar, which contained slack, straw, paper, and plenty of dust and dirt, the premises being very old. The back part of the cellar, railed off, containing butts of leather, showed no trace of moths.

Close searching revealed cocoons in the niches of the walls, made of silk, covered with particles of coal dust, whiting or brick dust, harmonizing so well with the surroundings that full ones were very difficult to find, although empty cases sticking out of the cocoons were very conspicuous, sometimes half a dozen together in a bunch.

The pupa is about three-eighths of an inch long, pale shining ochreous, the

wing-cases darker, the antennæ enveloped in thin, transparent sheaths, lying loose on the wing-cases, not fastened down, as is usual in the *Lepidoptera*. This fact is remarkable, and I believe attention has not been drawn to it before. After the moth has emerged, the antennal sheaths are sometimes left so perfect that one might imagine the antennæ still there.

I obtained eggs from several females, one batch hatched March 18th, but I failed to rear the larvæ, although trying them with straw, paper, bits of rabbit skin, &c. The egg is oblong, a little rounder at one end than the other, the colour white, and the surface slightly honeycombed.

One full-fed larva was found February 5th, which spun up next day; this larva was half an inch long, dirty white; head reddish-brown, and a plate on 2nd segment. The imago swarmed during October, November, and appeared in gradually decreasing numbers through December, January, February, March, the latest capture being April 7th. Although my attempts to discover the food of the larvæ have up to the present failed, I yet hope to find it out, as the moths still exist in the cellar, two having been taken this month and a few cocoons.—RALPH C. BRADLEY, Holly Bank, Clifton Road, Sutton Coldfield: *February, 1895.*

Further notes on Psyche villosella.—When in the New Forest in May, 1848, I found a considerable number, near Lyndhurst, of the “full-grown” cases of this species, and having put them in a band box, taking the top off and covering it over with a fine gauze, placed it in the day time in the garden of the house where I was staying. In a few days the males appeared, when I secured several fine specimens; one afternoon I found a male and female *in cop.*, and on examination I observed the latter had turned itself round in the case to admit the organs of the male, when pairing took place, and the wings of the male then became horizontal. In no case did I find the females leave their cases. Most of the above remarks confirm the observations made by my old esteemed friend, the late J. Jenner-Weir, recorded in the last number of your Magazine by Mr. Barrett. Where I was staying at Lyndhurst was nearly a mile from the heath where I found the cases, but one afternoon I noticed a number of males flying round the band box, no doubt attracted by a freshly emerged female, and I succeeded in capturing a few.—SAMUEL STEVENS, Loanda, Beulah Hill, Upper Norwood: *March 5th, 1895.*

Aleurodes brassicæ, Walk.—Mr. C. W. Dale writes that this species is usually abundant on the indigenous wild cabbage which grows on the coast of the Isle of Purbeck, although it was not so common there last autumn as in the previous year, and, therefore, that the species must not be regarded as imported and naturalized on cabbages cultivated in gardens.—J. W. DOUGLAS, 153, Lewisham Road, S.E.: *March 16th, 1895.*

Hemiptera near Leicester.—I have lately had occasion to look over some *Hemiptera-Heteroptera* captured in the neighbourhood of Leicester by Mr. John Stanyon, and amongst them were the following, which I think are worthy of record, especially as so little is known of the species of the Midland Counties: *Scolopostethus neglectus*, Edw., *Ploiaria vagabunda*, Linn., *Phytocoris populi*, Linn., var.

H

distinctus, D. and S., *P. Reuteri*, Saund., *Macrolophus nubilus*, H.-S., *Orthotylus diaphanus*, Kbm., on willows, *Cyrtorrhinus carieis*, Fall., *Psallus Rotermundi*, Scholtz., white poplar. It is to be hoped that Mr. Stanyon will continue his researches, as he will doubtless thereby add considerably to our knowledge of the Midland *Hemiptera*.—EDWARD SAUNDERS, 27, Granville Park, Lewisham, S.E.: *March 9th*, 1895.

Andrena albicans, Kirby, and *Nomada bifida*, Thoms.—Mr. K. J. Morton kindly sent me a few weeks ago some examples of *Andrena albicans* and *Nomada bifida* taken by himself in the Isle of Arran. As these were the only two species he sent I thought that probably they had been taken in the same spot, and on writing to him I find that this was the case; he tells me that he feels sure that they were associated. If this be so, which is highly probable, it determines the host of *N. bifida*, which was doubtful before; *N. bifida* is a common species, and appears early in the spring, frequently occurring at sallow blossoms, so that its association with *Andrena albicans* seems natural and probable from all points of view. We have still three species of *Nomada* whose hosts are doubtful, or unknown, viz.: *N. Roberjeotiana*, a very rare species, and therefore affording few opportunities for observation; *N. solidaginis*, a most abundant species in some localities, occurring in July and August, which F. Smith held to be the inquiline of *Halictus rubicundus* and *leuczonius*, but the hibernating habits of the ♀ *Halicti* make it improbable that any *Nomada* should associate with them; and *N. furva*, a very common species also, supposed to associate with small *Halicti*. Any observations on the habits of these three species would be very valuable; two of these are sufficiently common to offer ample opportunities for investigation, and if these are really associated with *Halictus*, there must be a very curious and interesting life history to be worked out.—ID.

Andrena ambigua, Perkins, in Norfolk.—Mr. Perkins, in our February number (p. 39), describes this species from specimens which he took in Devonshire, near Moreton Hampstead, and says that he had received a single ♂ from King's Lynn, in Norfolk; I have received two females, which undoubtedly belong to the same species, from Tostock, near Bury St. Edmunds, taken by Mr. W. H. Tuck; and I have a single ♂, without any label as to locality, which I believe I received from Mr. Bridgman many years ago. If I remember rightly, he sent me two males which he thought were distinct, but I failed then to see any character by which to distinguish them apart, and put them both with my series of *varians*. I have two specimens now, both well set, which I believe to be the two in question. One of these is *varians*, ♂, the other, *ambigua*, ♂; the difference in the respective lengths of the 2nd and 3rd joints of the flagellum, as mentioned by Mr. Perkins, is a very easily detected character. The ♀ is like *varians* in the black haired face, but at first sight may be known from it by the whitish hairs on the abdomen, like those of *helvola*. I think *ambigua* will probably prove to be a widely distributed species.—ID.: *March 11th*, 1895.

Abnormal alar neurulation in a Pompilus.—Mr. W. H. Harwood has lately sent me a few Aculeate *Hymenoptera* to identify, and amongst them is a most interesting specimen of *Pompilus consobrinus*; this species, which is a rare one, has an unusually

large 3rd submarginal cell, which is almost quadrate, whereas in our other red-bodied species, with the exception of *spissus*, it is subtriangular; in the specimen in question the dividing nervure between the 2nd and 3rd submarginals is absent in both wings, so as to leave a large transverse cell, which is almost as long as the marginal cell, and of which the upper margin is about two-thirds as long as the lower. The shape of the cell at once distinguishes it from *Evagethes*, with which it might otherwise be confounded, so far as neururation goes, as in this latter the 2nd submarginal is subtriangular. Cases of abnormal neururation, symmetrical on both sides, are rare amongst the Aculeata, but they show how unwise it is to form genera on neurational characters only.—ID.

Coleoptera in 1894.—I found 1894, in spite of the wet summer, a very good year for *Coleoptera*, and I added over two hundred specimens to my collection; some of the best species were:—

Hastings and neighbourhood, in April—*Hydroporus ferrugineus*, *Dermestes undulatus*, *Heterocerus sericans*, *Bagous collignensis*, *Bledius unicornis*, *Limnichus pygmaeus*, *Sitones Waterhousei*, and *Achenium depressum*.

New Forest, in May—*Grammoptera analis* and *ustulata*, *Elatер pomonæ*, and *Tachinus elongatus*.

Guestling Wood, in May—*Tychius 5-punctatus*, *Pogonochærus bidentatus*, and *Rhynchites betuleti*.

Dorking, in May—*Oxyptoda spectabilis*.

Sevenoaks, in June—*Telephorus translucidus*.

Deal, in June—*Saprinus metallicus* and *Psammobius sulcicollis*.

Isle of Wight, in July and August—*Cicindela germanica*, *Hoplia philanthus*, *Dromius vectensis*, *Heterocerus fuscus*, *Harpalus discoides* and *tenebrosus*, *Zabrus gibbus*, *Ocyptus pedator*, *Tachyporus formosus*, *Necrophorus interruptus*, *Licinus silphoides*, *Badister unipustulatus*, and *Sitones cambricus*.

Near Walton, in October—*Necrophorus vestigator* and *Tachinus scapularis*.

Hastings, in December—*Tropiphorus carinatus*.

Wherever I have been during the year I have worked ants' nests, and have been rather successful with the myrmecophilous *Coleoptera*, having taken the following:—

Oxyptoda formiceticola, *Thiasophila angulata*, *Dinarda Märkeli*, *Atemeles emarginatus*, and *Myrmedonia humeralis*, with *F. rufa*. *Drusilla canaliculata* with *F. flava*. *Notothecta flavipes*, *Quedius brevis*, *Leptacinus formicetorum*, and *Othius myrmecophilus*, with *F. rufa*. *Staphylinus stercorarius* and *Claviger foveolatus* with *F. flava*. *Coccinella distincta*, *Monotoma conicicollis* and *formicetorum*, and *Dendrophilus punctatus*, with *F. rufa*. Five specimens of *Claviger* I took in company with a little black ant.—HOBACE DONISTHORPE, 73, West Cromwell Road, South Kensington: February 25th, 1895.

Food adaptability in the genus Cis.—It has occurred to me that some account of the rearing by me of two species of *Cis* on non-natural pabulum some years since may be worth recording.

When walking amongst some trees on a fine day in a mild winter, searching for indications entomological, the merest scrap broken from a *Polyporus* lying on the ground caught my eye and was conveyed home, where other things requiring all my

attention, it was put into a small tin box and forgotten. On an occasion in the following summer I happened to open the box, and saw therein a few little beetles and a small amount of powder consisting of their excrement. The beetles were *Cis bidentatus*, and were new to me. Wishing to procure more of the beetles, and no *Polyporus* being available, it struck me that a piece of stale bread might serve them as a substitute. Such a bit of bread was placed in the box with them. In a day or two after the creatures were found to have mined the bread just as they would their natural food. As the bread diminished in size and became discoloured, fresh pieces were put in from time to time. Soon hundreds of larvæ were perceptible, and later hundreds of perfect beetles; and during the remainder of that and the next year several broods of the creatures were reared, filling several large tins, when, tiring of the business, I turned them out to get their own living. Some were tried on thick orange peel, and they took greedily to the white inner rind, burying themselves therein. This substitute food was so liable to become mouldy that I discontinued the experiment. At that time the Rev. Theodore Wood helped me to two or three living specimens of *Cis bilamellatus*, too few to be of much use by themselves. I therefore tried to breed more from them on stale bread, and succeeded in rearing sufficient for my collection.—J. E. FLETCHER, Worcester: *March*, 1895.

Rare Hydradephaga near West Ayton, Yorkshire.—I am glad to be able to record a new locality for *Hydroporus oblongus*. Last summer I took about a score at the mossy edges of a shallow pool in the vicinity of this village. The locality closely resembled the Askham Bog habitat, and many of the same insects accompanied it, *e. g.*, *H. vittula*, *granularis*, *atriceps*, *umbrosus* and *memnonius*. I also took *Agabus uliginosus* in the same spot. I have recently taken *H. discretus* in a pool on Filey Cliffs, and many *melanarius* on these moors, with *tristis*.—W. C. HEY: *March*, 1895.

Hydroporus incognitus and Agabus tarsatus near Whitby, Yorkshire.—When searching for *Coleoptera* in Arncliffe Wood, near Whitby, on September 4th last year, a small pool (about three feet wide) near a watercourse came under my observation. It proved to contain a considerable number of water-beetles (a dozen species), among which *Hydroporus incognitus*, Sharp, occurred in profusion. The comparing of another insect with an example of *Agabus tarsatus*, Zett. (*melanarius*, Aubé), revealed the probability of its belonging to that rare species, and the opinion has subsequently been confirmed by Dr. Sharp in his examination of the specimen.—M. L. THOMPSON, Saltburn-by-the-Sea: *February 20th*, 1895.

A List of Coleoptera for Notts.—I should be very glad of the help of any of the readers of this Magazine in drawing up a list of the species of *Coleoptera* occurring in this County. The records in the Ent. Mo. Mag. have been well searched, and no doubt most, if not all, of the rarities occurring in the County have been noted. What is most wanted are records of the commoner species. The list at present comprises 600 species, many of them of extreme rarity, and some unique in this country. I shall be very pleased to enter into communication with any one who will help. — ALFRED THORNLEY, South Leverton Vicarage, by Lincoln: *March*, 1895.

Nothochrysa fulviceps and *N. capitata* in Lincolnshire.—Mr. S. L. Mosley of this town recently showed me a small collection of Lincolnshire *Neuroptera* formed several years ago by Mr. James Eardly Mason, of Alford. In it I was very pleased to find a fine specimen of *Nothochrysa fulviceps*, labelled "Aythorpe, June 26th, 1889, F. Alftoft." There was also an example of *N. capitata* in the collection, bearing the label "Tothill Wood, June 14th, 1890."—Geo. T. PORRITT, Crosland Hall, Huddersfield: March 5th, 1895.

[At p. 170 of this Magazine for 1891 I called attention to the fact that no "comparatively recent" occurrence of *N. fulviceps* had been recorded. In fact, I had almost come to look upon it as extinct here. Its occurrence in Lincolnshire so recently as 1889 is therefore very interesting, and I hope we shall soon hear more of it as a native. It is recorded that some of the specimens in old collections came from Windsor Forest.—R. McLACHLAN].

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: February 28th, 1895.—Mr. G. T. BETHUNE-BAKER, Vice-President, in the Chair.

A letter was read from Mr. G. H. Kenrick requesting to be relieved of the office of President for the present year; Mr. G. T. Bethune-Baker was therefore elected President in his stead, and Mr. P. W. Abbott to the office of Vice-President thus left vacant.

The following were exhibited:—By Mr. Bethune-Baker, a number of *Lepidoptera*, including English *Lalia canosa* and *Acidalia contiguaria*; *Aporophyla lutulenta*, var. *sedii*, from Ireland, *Noctua depuncta*; very dark *Acronycta ligustri*, from Llangollen, some beautiful brown forms of *Rumia cratagata*, and other nice varieties, &c. Mr. R. Freer, a number of varieties, chiefly from Cannock Chase, amongst others were a *Rumia cratagata*, of a lovely pale or yellow-orange colour, deeper along the costa, from the Chase; *Ennomos angularia*, several varieties from Hyde Park; *Notodonta dictæa*, one from the Chase, of a delicate pale brown, without white in any portion; a specimen of *Noctua festiva*, of the form called *confusa* by Newman, from the Chase; a brilliant orange specimen of *Xanthia aurago* from Ashford, Kent; and varieties of *Notodonta dictæoides*, *Asphalia flavicornis*, *Diloba cæruleocephala*, &c. Mr. C. J. Wainwright, a box of *Lepidoptera*, including *Acronycta leporina*, var. *bradypporina*, one from Knowle being very dark and suffused. Mr. E. C. Rossiter, a number of *Lepidoptera*, chiefly from Arley, including a specimen of *Lycana Alexis*, very chalky, approaching *L. Corydon* in colour, and with a white spot in the centre of each wing; a fine dark *Cleora glabraria* from the New Forest, and other varieties, &c. Mr. R. G. B. Chase, *Dianthæcia conspersa* from Lundy Island. Mr. P. W. Abbott, bred series of *Hadena suasa* from Hull, and *Sesia culiciformis* from Market Drayton. Mr. R. C. Bradley, a rose bush covered with empty cases of *Coleophora gryphipennella*, from his garden at Sutton, also *Orthosia suspecta* from Barnt Green.—COLBEAN J. WAINWRIGHT, Hon. Sec.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: March 11th, 1895.—Mr. S. J. CAPPER, F.L.S., F.E.S., President, in the Chair.

Mr. R. J. Thompson was elected a Member of the Society.

Mr. R. Newstead, F.E.S., Curator of the Grosvenor Museum, Chester, read some

"Observations on insects found in birds' stomachs." In the course of an exceedingly interesting lecture, Mr. Newstead gave a surprisingly long list of insects of all Orders, which had been found on dissection. The largest number of named species was in the Order *Coleoptera*, this being due to the fact that their hard elytra are not assimilated so rapidly as are the softer *Diptera* or *Lepidoptera*. The President exhibited a fine series of varieties of *Smerinthus tilia*; Mr. Watson, the rare *Papilio Bairdii* and its pupa; Mr. H. B. Jones, *Lepidoptera* from the West Coast of Africa; and Mr. R. J. Thompson, Exotic *Coleoptera*, found in imported timber.—F. N. PIERCE and A. BICKERTON JONES, *Hon. Secs.*

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: *February 28th*, 1895.—T. W. HALL, Esq., F.E.S., President, in the Chair.

Mr. Beauman, 18, Victoria Road, S.W., was elected a Member.

Mr. Edwards exhibited larvæ of the Dipteron, *Eristalis tenax*, L., found in some water in the stump of an old apple tree. Mr. Adkin exhibited a series of *Crambus ericellus*, Hb., from Sutherland. It was stated that this species differed from *C. pascuellus* in always having the silvery stripe narrow and even. Mr. Tutt, continental specimens of *Xanthia ocellaris*, and pointed out the features distinguishing it from *X. gilvago*, viz. (1) the lower part of the reniform stigma was white; (2) the nervures were well dotted with white scales; (3) the apex of the wing was different. Mr. Tutt also read a paper, entitled, "*Lithosia lutarella*, L., and its varieties," illustrating it by a magnificent series from Deal and the Alps.

March 14th, 1895.—The President in the Chair.

Mr. Rye, of Fulham, was elected a Member.

Mr. Frohawk exhibited a magnificent and long bred series of *Vanessa c-album*, L., showing both light and dark forms of male and female from one batch of ova. A discussion ensued, in which it was suggested that the pale form was the one which produced a second brood, whilst the dark form went early into hibernation. Mr. Adkin, a series of *Melanippe hastata*, L., from Sutherland, intermediate in coloration between the usual Southern and Northern forms. Mr. Sauzé, a specimen of *Cedipoda tartarica*, taken among imported garden produce at Brixton. Mr. A. Hall, a *Danaine* butterfly, *Ithomia patilla*, with Pierine mimic, *Dismorphia fortunata*, from Nicaragua. Mr. Edwards, four varieties of the female of *Papilio Memnon*, *P. Segonax*, *P. Westwoodii*, two *P. Epycides*, two *P. Autocrates*, and *P. Pammon*, var. *javernana*. —HY. J. TURNER, *Hon. Sec.*

ENTOMOLOGICAL SOCIETY OF LONDON: *February 20th*, 1895.—Professor RAPHAEL MELDOLA, F.R.S., President, in the Chair.

Mr. W. M. Christy exhibited specimens of *Lycana Agestis*, caught in Surrey, last summer, which had a white edging round the black discoidal spot. He said the specimens might, perhaps, be identical with the Northern form of the species known as the variety *salmacis*. Mr. H. Goss exhibited a small collection of *Lepidoptera*

from the South of France, made by Mr. Frank Bromilow. Professor Meldola invited discussion upon the address delivered by Mr. Elwes, as retiring President, on the Geographical Distribution of Butterflies, at the last Annual Meeting. He remarked that he had not himself had time to consider the paper in an adequate manner, but he thought that the discussion might lead to a useful expression of opinion if the speakers would deal with the question as to how far the scheme of distribution advocated by Mr. Elwes was borne out by a comparison with other Orders of insects. He was of opinion that in considering schemes of Geographical distribution, the results arrived at were likely to be of greater value the wider the basis on which they rested, and he therefore suggested that the question might also be taken into consideration as to how far it was justifiable to draw conclusions from the consideration of one division or one Order only. He did not offer these observations in a spirit of adverse criticism, but simply with the object of setting the discussion going. Dr. Sharp remarked that Geographical distribution consisted of two divisions: firstly, the facts; secondly, the generalizations and deductions that may be drawn from them. He thought that as regards insects generally our knowledge of the facts was not yet sufficient to warrant many generalizations. Still the impressions of those who have paid attention to particular groups of insects are even now of some importance, though at present based on incomplete knowledge. He thought the *Rhopalocera* would prove to be a somewhat exceptional group in their distribution. Notwithstanding that Australia and New Zealand are so poor in them this was by no means the case with their *Coleoptera*, Australia being very rich, and its fauna of *Coleoptera* being very distinct. He thought that if *Lepidoptera* generally were well collected in Australia and New Zealand, it would be found that this Order was not so poor in species as was supposed. He instanced the case of the Sandwich Islands, where it was supposed that there were very few species of *Lepidoptera*, and yet some 500 species, or perhaps more, had been recently found there by Mr. R. C. L. Perkins, who had been sent to investigate the islands by a committee appointed by the Royal Society and British Association. Mr. McLachlan said he was of opinion that no definite demarcation of regions existed, but that all the regions overlapped; in any case, the retention of Palearctic and Nearctic as separate provinces was not warranted on Entomological data. He thought that at the close of the Glacial period some insects instead of going north were dispersed southwards, and that the present Geographical distribution of some forms might thus be accounted for. The discussion was continued by Mr. Osbert Salvin, Mr. J. J. Walker, Herr Jacoby, Mr. Champion, Mr. Elwes, and Professor Meldola. The Rev. T. A. Marshall contributed a paper, entitled, "A Monograph of British *Braconida*, Part VI." Mr. J. W. Tutt read a paper, entitled, "An attempt to correlate the various systems of Classification of *Lepidoptera* recently proposed by various authors." In this paper he criticized the opinions recently expressed by Mr. G. F. Hampson and Dr. T. A. Chapman, in certain papers published by them. A discussion ensued, in which Mr. Elwes, Professor Meldola, and Mr. Tutt took part.

March 6th, 1895.—The President in the Chair.

The following gentlemen were elected Fellows of the Society:—Mr. H. T. Dodson, of Ivy House, New Malden, Surrey; Mr. Herbert Massey, of Fairfield,

Didsbury, Manchester; Mr. Thomas M. McGregor, of 30, North Methven Street, Perth, N. B.; Mr. Sidney Crompton, of Salamanca, Santa Cruz, Teneriffe; Mr. Benjamin Hill Crabtree, of The Oaklands, Levenshulme, Manchester; and Mr. G. A. K. Marshall, of Salisbury, Mashonaland, S. Africa. Mr. B. G. Nevinson exhibited a long series of *Heliothis peltigera*. He stated that the specimens were bred from larvæ found on the Dorsetshire coast during July, 1894, feeding on the flowers of *Ononis arvensis*, which were extremely luxuriant. A few also were taken on *Hyoscyamus niger*. He added, that all the larvæ went down by the end of July. The first emergence took place on August 20th, and they continued coming out at the rate of about five a day, through the rest of that month and September; only five emerged in October, and the last one appeared on November 11th. Mr. Nevinson said that not one larva was ichneumonized, and only three or four imagines were crippled. Mr. G. T. Bethune-Baker, Mr. Eustace Bankes, Mr. B. A. Bower, the Rev. Seymour St. John, and Mr. H. Goss, made remarks on the habits and distribution of the species in England. Mr. Bower exhibited a variable series of *Scoparia basistrigalis*, Knaggs, showing light, intermediate and dark forms, taken at Bexley, Kent, from 12th of June to 7th of July, 1891-94. He said the species appeared to be poorly represented in collections, and when present was almost invariably mis-named. Mr. Eustace Bankes commented on the rarity of the species, and said the specimens exhibited formed the most interesting collection of it and its varieties which he had ever seen. Lord Walsingham exhibited larvæ of *Pronuba guccasella*, which he received more than four years ago from Colorado, and which were still living. One specimen of the moth had emerged two years ago. Mr. Goss exhibited for Mr. G. C. Bignell a pupa of a *Tortrix*, with the larval legs, and also a specimen of a Sawfly, *Emphytus cinctus*, L., with eight legs. Mr. G. H. Verrall and Mr. McLachlan made some remarks on the latter species, and as to the insertion of the fourth pair of legs. Professor Meldola exhibited a wooden bowl from W. Africa, from which, after arrival in this country, a number of beetles (*Dermestes vulpinus*) had emerged. Specimens of the latter were also exhibited. It was not clear to the exhibitor whether the larvæ had fed upon the wood, or had simply excavated the cavities which were apparent in the interior of the bowl for the purposes of pupating. Mr. McLachlan, Mr. J. J. Walker, Herr Jacoby and Lord Walsingham made some remarks on the habits of *Dermestes*, and it was generally considered that the larva of *D. vulpinus* excavated the wood for the purposes of pupation, and not for food. Mr. Kirkaldy called attention to and exhibited three volumes of an important new work by Dr. McCook, on "American Spiders." Mr. Champion read a paper, entitled, "On the Heteromorous *Coleoptera* collected in Australia and Tasmania by Mr. J. J. Walker, R.N., during the voyage of H.M.S. 'Penguin,' with descriptions of new genera and species. Part II." Mr. Walker and Mr. Gahan remarked on the distribution of some of the species described. Mr. Roland Trimen contributed a paper, entitled, "On some new Species of Butterflies from Tropical and extra Tropical South Africa." Mr. G. A. James Rothney contributed a paper, entitled, "Notes on Indian Ants," and sent for exhibition a number of specimens in illustration of the paper, together with nests of certain species.—H. Goss, *Hon. Secretary*.

NOTES ON THE OCCURRENCE OF *STEGANOPTYCHA PYGMÆANA*,
Hb., AT MERTON (NORFOLK) IN 1894.

BY JOHN HARTLEY DURRANT, F.E.S.

Towards the end of April, 1893, in the middle of the day, a small *Tortrix* with white hind-wings flew over my head, and not having a net with me I was unable to catch it, as it flew to the top of a high Scotch fir.

I had for several years been on the look out for *S. pygmæana*, but this brief view was all I had of it in 1893, for although I searched diligently I was unable to meet with another. I made a note to try earlier the next year. I commenced hunting for it, on sunshiny days, from the beginning of March, 1894, but I did not meet with it until the 25th, when I secured a fine ♂. I took another on the 26th, one on the 29th, three on the 30th (one a ♀), six on April 1st, three on the 2nd, two on the 3rd, four on the 4th, one on the 6th, and ten on the 7th. Hitherto my captures had been obtained from isolated high spruces, necessitating very hard work, for it was necessary to throw heavy sticks to the tree-tops, and when a moth was started mark where it settled, and then again dislodge it in the same manner until it came low enough to be caught with a net on a long pole. On the 8th I was unable to find a specimen on the trees, so I thought I would work the spruce hedges which border the grass drives in the Merton kitchen garden. At the first stroke out flew *pygmæana*. I had with much exertion and great expenditure of time already captured 32 specimens. On this day (the 8th) I had the satisfaction of taking 33 more in about a couple of hours. Henceforth I confined my attention to the hedges. On the 9th I took eleven, on the 10th twenty-seven, on the 11th seven. The weather now changed and became cold and rainy; I took four more on the 15th, and finding that though still out in numbers they were getting worn, and badly mixed with *hyrciniana*, I ceased collecting, well satisfied with a bag of 114 specimens, all taken within about 100 yards of my house.

When first met with they occurred *only* on the sunny side of the trees, and when I moved to the hedges they were still to be found only on the sunny side. It was very pleasant collecting now, for I had a hedge on either side (about 12 feet apart), and could stand in the shadow and catch them in the sunshine. The ♂ appears to fly freely for little more than half an hour at about mid-day, evidently seeking the ♀, which, in my experience, is found only on the shady side; after this brief flight they only fly when disturbed. I took my

first ♀ (*in cop.*) on March 30th, and did not, I think, take another until the 8th, when I found out the reason of its apparent rarity. When disturbed with the beating stick the ♂ flies out, *but the ♀ drops to the ground like a stone.* After this discovery the ♀ was no longer a rarity, and I caught quite as many females as males.

I had for nearly ten years beaten these same spruce hedges at the proper time of the year, and yet I had never seen a specimen. At first I could hardly believe I had overlooked it, and out of curiosity I searched on several days when it was plentiful, at my ordinary time of collecting, from about 5.30, but I never saw a trace of *pygmæana*! The moth was only to be met with from about 12.30 to about 4.30; after mid-day is, I think, really the best time.

This year the season is somewhat later, and *pygmæana* has not yet put in appearance, but as it is later in coming out it will probably remain until the beginning of May. Last year was altogether an exceptional one, and I should think the 15th of April would be about the date of its being well out under normal conditions. I think it will be found that *pygmæana* is not really a rarity, but that it is only to be obtained at hours when entomologists, as a rule, have not the leisure to work for it.

Merton Hall, Thetford:

April 3rd, 1896.

DESCRIPTION OF THE HITHERTO UNKNOWN IMAGO OF
FUMEA? LIMULUS, RGHFR.;
THE TYPE OF A NEW GENUS OF *DEPRESSARIADÆ*.

BY JOHN HARTLEY DURRANT, F.E.S., MEMB. SOC. ENT. DE FRANCE.

In the first volume of the Ent. Mo. Mag., pp. 125—6 (1864), Mr. McLachlan described and figured the curious cases of an unknown Ceylon insect from the British Museum collection of cases of Caddis-worms; he referred these cases with little doubt to the *Leptoceridæ*.

In 1889, Herr Rogenhofer (overlooking Mr. McLachlan's paper) described and figured the case, and the anterior segments of the larva of the same insect, and although unacquainted with the imago, bestowed upon it the name of *Fumea? limulus*.

Mr. McLachlan (Ent. Mo. Mag., XXV, 362) pointed out that Rogenhofer's case was the same as his own, and was disposed to agree that it was more probably of Lepidopterous than of Trichopterous origin.

In Lord Walsingham's collection are several cases, and four specimens of the perfect insect, bred by Mr. E. E. Green, at Pundaloya, and in Mr. Green's MS. Journal, p. 158, Pl. LXXIX, figs. 1—1d (now in the British Museum, Nat. Hist.) are figures of the larva, the cases, and the imago, accompanied by some very interesting notes on the life-history, which I quote after the description.

Fumea? *limulus* is not a *Psychid*, but belongs to the *Depressariadæ*, and constitutes the type of a new genus belonging to the same group as *Phæosaces*, Meyr. The occurrence of a case-bearing larva in this family is interesting, and apparently unrecorded, but I have reason to believe that coleophorous larvæ occur in more families of the (super-family) *Tineidæ* than is generally supposed. Whether the SPECIES is to be regarded as new I am unable to answer, for Rogenhofer has already given a name to the *case and larva*, which I have adopted for the *imago* also.

DEPRESSARIADÆ.

PSEUDODOXIA, *gen. nov.*

TYPE ♂ PSEUDODOXIA LIMULUS (Rghfr.), Drnt.

Antennæ (♂), as long as the fore-wings, stout, uniserrate; basal joint somewhat enlarged, slightly flattened, without a pecten.

Maxillary palpi, very short.

Labial palpi, recurved, reaching above the vertex; second joint with appressed scales; terminal joint shorter than second, acute.

Haustellum, developed.

Head, with appressed scales, sidetufts loosely spreading.

Thorax (apparently smooth).

Fore-wings, rather narrow, elongate, costa slightly arched at base, thence straight, apex somewhat depressed, not acute; apical margin very oblique, slightly convex. *Neuration*, 12 veins: 7 and 8 stalked, 7 to apex; 1 furcate at base, 2 from near angle of cell, 11 from before middle of cell.

Hind-wings, a little narrower than fore-wings, elongate, apical margin gradually rounded, but straightened along the dorsal margin before the abdominal angle, which is very slightly bulged and contains above, on vein 1, a tuft of hair-scales; cilia 3. *Neuration*, 8 veins: 6 and 7 separate, nearly parallel; 3 and 4 from a short stalk, 5 slightly bent over at origin; from vein 5 the discoidal nervure recedes obliquely backwards to 7; 8 free.

Abdomen, not flattened, genital segments well developed.

Hind-legs: tibiæ clothed with long hairs.

Larva, with 16 legs (6 thoracic, 8 abdominal, 2 anal); living in a case and feeding on lichens and mosses.

PSEUDODOXIA LIMULUS (Rghfr.), Drnt., IMAGO nov.

(*Leptoceridæ*—genus?, sp.?). McLach., Ent. Mo. Mag., I, 125-6, figs. 1-3 (1864)¹.

Fumea? *limulus*, Rghfr., Sitzb. Z.-B. Ges. Wien, XXXIX, 60-1, figs. (1889)²; McLach., Ent. Mo. Mag., XXV, 362 (1889)³.

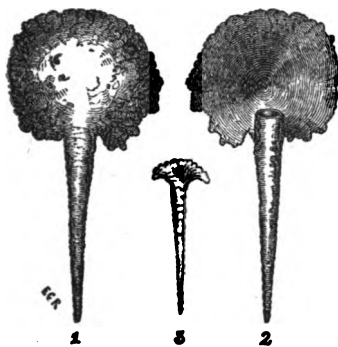
The following is a description of the imago, for the discovery of which we are indebted to Mr. Green:—

Antennæ, greyish-ochreous. *Palpi*, ochreous, second joint suffused with fuscous externally. *Head*, ochreous. *Thorax* (denuded), apparently fuscous. *Fore-wings*, clay-ochreous, more or less irrorated with fuscous scales, with three black spots arranged triangularly; the first on the disc at one-third, almost round, the second at the end of the cell, also round but slightly smaller, the third more elongate, in the fold below the first; a marginal row of small black spots at the terminations of the veins; cilia slightly more cinereous than the wings, with an indistinct darker line running through them. Exp. al., 19 mm. *Hind-wings*, pale fuscous, cilia ochreous. *Abdomen*, fuscous, anal tuft ochreous. *Hind-legs*, ochreous, the long hairs on the tibiae paler.

Type, ♂. Mus. Wlsm.

Hab.: CEYLON¹—Kandy², Pundaloya (Green, four specimens, Mus. Wlsm.).

Larva, "of a fleshy-pink colour, the apex of the head black, truncate, concave, forming an operculum to the tube." (Green MS.). It may be well to add that in Green's figure the head of the larva is black, the thoracic segments reddish-pink, the first six abdominal segments pale brownish, the remaining three being yellowish. The anterior segments of the larva are figured by Rogenhofer³.



Case, "composed of minute fragments of moss, sand and lichens. The anterior end is dilated into a shield-like hood, which hides and protects the head of the larva when feeding. The materials worked into the under-surface of the hood and tube are very fine, and in the specimen under examination are composed entirely of minute fragments of mica." (Green MS.).

Life-history.—"The larva when disturbed retires completely into the tube. It feeds upon small mosses and lichens upon rocks and trees. Before pupating, the larva folds down the edges of the hood over the mouth of the tube, like an envelope, fastening them with silk. The case is fixed to the rock or other support, and hangs there until the moth appears." (Green MS.).

Larva in January.—Rogenhofer³.

The figures of the case are reproduced from Ent. Mo. Mag., vol. i, p. 125, referred to above. Figs. 1 and 2 represent the upper and under-side of an adult larval case, twice natural size; fig. 3 the upper-side of a smaller case, natural size.

Merton Hall, Thetford :

March 31st, 1895.

A SMALL CONTRIBUTION TO A KNOWLEDGE OF THE NEUROPTEROUS FAUNA OF RHENISH PRUSSIA.

BY ROBERT McLACHLAN, F.R.S., &c.

The short time occupied by my continental excursion in 1894 was chiefly spent at two localities in Rhenish Prussia, in company with my old friend Mr. A. H. Jones.

From July 24th to 27th we stayed at Gerolstein, a large village in the ancient volcanic Eifel district, on the river Kyll, with a station on the line from Cologne to Trier (Trèves). This village is chiefly renowned for its trade in bottled mineral waters from several natural springs in the vicinity. The weather was indifferent. The country is very varied in its nature, with magnificent forests of vast extent, the surface highly undulating, and at places rising to considerable elevations. It should prove rich in *Neuroptera*, but in the course of only a few days' stay in a locality of this nature, one has not discovered the best working places before it is time to leave. The accommodation here is clean, if somewhat primitive, the drawback (to me, at least) being the absence of fruit of any description.

Devoting two days to the famous old city of Trier (which was new to my companion, but which I had previously visited), we moved on July 30th to Bullay, a small town on the Moselle, between Trier and Coblenz, connected with the town of Alf on the opposite side by a fine iron bridge in two tiers, the upper serving for the railway, the lower for vehicles and pedestrians. It is here that the Moselle forms one of those remarkable doublings upon itself for which it is so famous, including in its course a peninsula nearly nine miles (English) long, the neck of which is only about a quarter of a mile wide, so that on climbing a steep ridge the river lies as it were immediately below on either side. The weather here was fine, save for the occurrence of heavy downpours of short duration. Every available square yard is devoted to vineyards, and where the aspect is not suitable for them, the hills are covered with scrubby oak or other trees, with little or no undergrowth. Under these circumstances, the only collecting

ground is on the banks of the river, and we found the Alf side the most productive, being that of which the aspect is not suited to the nearly ubiquitous vineyards, and having grassy slopes covered with a vast luxuriance of wild flowers. At Bullay we stayed until August 2nd at the "Gasthof Marienburg," which we found clean, comfortable, and moderate, and can recommend. These introductory remarks are disproportionately long in comparison with the entomological results of the excursion, but as there are a few interesting species, and one (a *Perla*) especially so, it appears to me desirable to place on record a portion of what we did find, and more especially as nothing, or next to nothing, has been published for the places visited, so far as *Neuroptera* are concerned. The list might have been made considerably longer, but wishing to minimize luggage, I had a store box with me of the most modest dimensions, so that many universally common species were not brought home, and in some cases their names are now forgotten.

GEROLSTEIN, in the KYLLTHAL (EIFEL).

TRICHOPTERA.

Limnophilus extricatus, McLach.

Sericostoma turbatum, McLach. *Æcismus monedula*, Hag. (near Lissingen).

Goera pilosa, F. *Oligoplectrum maculatum*, Fourc. (in profusion on the Kyll).

Lepidostoma hirtum, F.

Odontocerum albicorne, Scop. *Leptocerus cinereus*, Curt.

Hydropsyche saxonica, McLach.; *H. instabilis*, Curt. ? (♀ only); *H. lepida*, Pict. *Wormaldia subnigra*, McLach. ? (♀ only). *Polycentropus flavomaculatus*, Pict. *Cyrnus trimaculatus*, Curt. *Lype phæopa*, Steph. ? (♀ only).

Rhyacophila dorsalis, Curt. (the only species seen).

Hydroptila forcipata, Eaton.

PLANIPENNIA.

Panorpa communis, L., var. (Amongst the herbage on the sides of the Kyll a *Panorpa* was abundant, which at the time I considered *P. germanica*, L., and, therefore, only brought home one ♂ for the sake of the locality. This example is structurally *P. communis*, but of a form that I have not seen before, very small, and with the markings brown instead of black, disposed as in some specimens of *germanica*. It is to me now a matter of regret that I did not capture more).

Osmylus chrysops, L. (abundant). *Sisyra fuscata*, F.

Hemerobius humuli, L. ? (♀ only). *Megalomus hirtus*, L. (one).

Chrysopa phyllochroma, Wesm. (Gerolsteinerwald); *Ch. 7-punctata*, Wesm. (one); *Ch. prasina*, Burm. (*aspera*, Wesm.); *Ch. ventralis*, Curt. (two); *Ch. flavifrons*, Br. (one); *Ch. tenella*, Sehnd. (very abundant, over forty taken, very variable in size); *Ch. alba*, L. (one); *Ch. vulgaris*, Sehnd. (a few). With one exception (already noticed) the *Chrysopa* were beaten from lime trees (*Tilia*) in full bloom by the road sides.

PSEUDO-NEUROPTERA.

PSOCIDÆ.

Psocus nebulosus, Steph. (abundant in a small fir plantation). *Philotarsus flaviceps*, Steph. *Cacilius obsoletus*, Steph. ? (one only).

EPHEMERIDÆ.

Ephemera danica, Müll. (a few). *Ephemerella ignita*, Poda (one). *Baëtis rhodani*, Pict. (a few).

ALF—BULLAY, on the MOSELLE.

TRICHOPTERA.

Goëra pilosa, F.

Leptocerus cinereus, Curt. *Homilia leucophæa*, Ramb. (common).

Hydropsyche guttata, Pict. *Holocentropus picicornis*, Steph. *Tinodes wæneri*,

L. *Psychomyia pusilla*, F. *Chimarra marginata*, L.

PLANIPENNIA.

Chrysopa 7-punctata, Wesm.; *Ch. flavifrons*, Brauer; *Ch. vulgaris*, Schnd. (all sparingly).

PSEUDO-NEUROPTERA.

PERLIDÆ.

Perla Selysii, Pict., var. n. *mosella*, vide infra.

EPHEMERIDÆ.

Polymita virgo, Ol. (in vast profusion in the spiders' webs on the bridge, mostly living; the flight is nocturnal; they, like most other *Ephemeridæ*, appear to be despised by the spiders). *Ephemera lineata*, Eaton (one ♀ subimago). *Choroterpes Picteti*, Eaton (sparingly in spiders' webs). *Canis halterata*, F. (abundant in spiders' webs). *Cloëon rufulum*, Müll. (a few). *Eodyurus flumium*, Pict. (a few).

ODONATA.

Orthetrum cancellatum, L. (not common in swampy ground).

Platynemis pennipes, Pall. (common). *Enallagma cyathigerum*, Charp. (a few). *Ischnura elegans*, V. d. L. (tolerably common). *Agrion puella*, L. (a few); *A. Lindenii*, Selys (this usually local species was very common, and far outnumbered all the other *Agrionina* put together, but the ♀ was scarce). *Sympycna fusca*, V. d. L. (two immature ♀).

PERLA SELYSII, Pict., var. n. MOSELLE.

♀. Differs apparently from the type-form in its less robust body, and generally darker colour. The whole upper surface of the body is black, save that the abdomen has a slight greyish tinge. Under-side of head yellowish, with a large shining black basal spot; abdomen beneath with a broad, median, yellowish, longitudinal band (sometimes obsolete); egg-valve probably not differing from that of the type-form. Caudal setæ having the joints furnished with long, verticillate, yellowish hairs, as in the type-form; these setæ are darker in colour, almost greyish-black, with the base of each joint deeper black, so that the annulated appearance, which is somewhat conspicuous in the type-form, is here only visible in certain lights. Legs greyish, femora and tibiæ indistinctly lined with blackish, and blackish at the tips, the tarsi wholly blackish. Wings apparently narrower, and with the apex more produced than in the type-form (the pale costal margin similar in both), more transparent, and with a decided pale smoky tinge. Expanse, 33—37 mm.

♂ semi-apterous, as in the type-form, but apparently more slender. The prevailing colour of the body is yellowish, the disc of the head with raised black lines and spots, the pronotum with strong black margins and median line; abdomen with blackish spiracular spots on each side above the lateral suture; caudal setæ yellowish at the base; legs nearly wholly yellowish, the tips of femora and tibiae, and the tarsi, blackish. (Probably an immature specimen.)

Length, dry, 10 mm. (much longer when living).

Hab.: the banks of the Moselle, near Alf, 13 ♀ and 1 ♂ (the only ♂ was taken *in cop.* by Mr. Jones). We took these examples by sweeping the herbage under the railway bridge, and for a space of a few yards on either side of it. Diligent search for half a mile beyond in either direction failed to produce further specimens, and I could only come to the conclusion that the obstruction to the ordinary current caused by the pile of the bridge had set up a water-condition requisite for the species. No examples could be found under stones near the water's edge, and no cast nymph skins were visible.

The typical *P. Selysii* is probably peculiar to the Meuse; I hesitated as to describing the examples from the Moselle as a distinct species, or as only a variety or race. The latter course seems the more prudent, and especially as my materials for the type-form are old and insufficient. It is an interesting discovery for the district, and the time of year was very late for any species of the genus in such a locality.

Lewisham, London:

March 30th, 1895.

ADDITION OF TWO SPECIES OF *HYDROPTILIDÆ* TO THE BRITISH LIST.

BY J. J. F. X. KING, F.E.S.

In the year 1881, while collecting near Ambleside, I captured a number of specimens of a *Hydroptila*, which I laid aside as a new species, having made drawings of the anal parts. When Mr. Morton was looking over my collection, he recognised the drawings as representing a species recently described by Dr. Ris, under the name *H. TIGURINA*. This species was not uncommon, as I find that I have a number of specimens from the Ambleside district.

OXYETHIRA FRICI, Klap.—I have one specimen of this species in my collection, taken in the Rothiemurchus district a few years ago. For the identification of this I am also indebted to Mr. Morton.

207, Sauchiehall Street, Glasgow:

April, 1895.

RARE BRITISH DIPTERA IN THE BRITISH MUSEUM (NATURAL HISTORY), SOUTH KENSINGTON.

BY THE REV. E. N. BLOOMFIELD, M.A., F.E.S.

Within the last three or four years a beginning has been made in forming a fresh representative collection of British *Diptera*.

Stephens' cabinets being left untouched, the basis of this new arrangement consists of a large number of specimens which have recently been collected and presented through the kindness of several entomologists, among whom may be specially mentioned Colonel Yerbury, who has collected for the Museum in the New Forest, South Devon, &c., while rare species have been contributed by several other collectors; these have been supplemented by a collection made by the late Mr. Clifton. It may therefore prove of interest to mention a few of the rarer species.

I will confine my remarks in great measure to the *Syrphidæ*, and even of these mention in detail but a few of the more rare and conspicuous species. I give them in the order of Mr. Verrall's list.

Melanostoma hyalinatum, Fln.—This is a much larger insect than any other British species; the body is broad instead of linear as in the small species of this genus.

Didea fasciata, Mg., and *D. intermedia*, Lw.—Specimens of both these rare insects are in the Museum, the first species from South Devon, the second from the New Forest and Mr. Clifton's collection. A third British species, *D. alneti*?, Fln., has just been added to the collection; it was taken at Colchester in 1893. This species, in which the median band alone is uninterrupted, has been taken both at Wyre Forest and Sutton by Mr. R. C. Bradley (*ante* p. 51). It is doubtful if all these three forms are distinct species.

Syrphus tricinctus, Fln.—This handsome species is rare, but there are a number of nice specimens, most of which were taken last year by Colonel Yerbury in the New Forest. It is a very distinct looking *Syrphus*. *S. euchromus*, Kow.—This has a narrower abdomen, with three broad divided yellow bands, of which the second and third are broader than the first and resemble oblong spots, thus giving the fly an appearance very distinct from any other species of *Syrphus*; the fourth band is narrow. This species has been taken in S. Devon, the New Forest, Feldon in Herts, and also near Colchester. It is probably the *S. decorus*, Mg., of Verrall's list.

Pelecocera tricincta, Mg.—This, one of the smallest of the *Syrphidæ*, is about the size of *Melanostoma ambiguum*, Fln. In general

appearance it somewhat resembles a small male of *M. mellinum*, L., but it is distinguished at once by its curious antennæ, the third joint of which is large and flattened and bears a stout three-jointed style projecting from its upper angle. The third joint is rounded below and straight above, of an orange-yellow colour, except the upper margin, which, like the style, is brown.

Doros conopseus, F.—There is only one specimen of this fine species, it is from Mr. Clifton's collection. It is a handsome insect, more than an inch in expanse of wing, and at first sight looks like a large *Conops*.

Myiolepta luteola, Gmel.—A small series of this rare insect is from the New Forest.

Eristalis cryptarum, F.—This species, which is marked doubtfully British in Mr. Verrall's list, has been taken in several localities in the South-West of England. There is a fine series in the Museum from Ivybridge, Devon. It is especially distinguished by its general orange-red colour; the larger portion of the abdomen is black, but the margins of the 2nd, 3rd, and 4th segments are conspicuously yellow, and the triangular marks at the base, the scutellum and legs are orange-red. The thorax has a distinctly reddish-brown hue not seen in any other British species of *Eristalis*. *E. rupium*, F.—There is only one specimen of this fine species, which has a large dark brown mark on the wing beneath the black stigma.

Mallota eristaloides, Lev.—One specimen from Lyndhurst. The venation is exactly the same as in *Helophilus* (the marginal cell is open, as in that genus, not closed as in *Eristalis*). At first sight this might be mistaken for *Oriorrhina asilica*, Flin., but it is at once distinguished by the venation and the absence of the pale marks upon the abdomen, seen in this latter species.

Merodon equestris, F.—This used to be considered a very rare British insect, but is now becoming common. It is very variable. Its larva feeds on bulbous roots, such as *Narcissus*, *Bulbocodium*, &c.*

Oriorrhina ruficauda, Deg.—This, one of the finest of the British *Syrphidæ*, is more like *C. berberina*, F., than any other British species of the genus; but it is larger, narrower and more elongate, and is

* The undoubted fact that *Merodon* is becoming more common here than it was formerly, is, no doubt, mainly due to the large importations of bulbs of *Narcissus* from the South of Europe. A friend of mine, a noted horticulturist, never observed any signs of the ravages of its larvæ until after having purchased, in an unlucky moment, a bag of imported bulbs; since then it has occasioned great damage in his garden. It will feed on many kinds of bulbs. Recently it came under my notice as destroying those of *Eurycles*, an Australian genus. Bulbs of *Narcissus* (and probably of other plants), that have been attacked by *Merodon*, but not killed outright, are found next season to have divided themselves into a varying number of healthy smaller bulbs, so that, to some extent, the attacks of the larvæ form a means of propagation!—R. MCLACHLAN.

entirely clothed with black hair except the scutellum and tip of the abdomen, which are covered with yellow or whitish-yellow hair. The posterior femora in this species are greatly swollen. All our British *Oriorrhina* are handsome insects.

Pocota apiformis, Schrk.—In the arrangement and colour of the yellow and black hair this closely resembles *Oriorrhina berberina*, F., but is easily distinguished by its small head and by a conspicuous dark brown band which extends half way across the middle of the wing. Of this and the preceding species a series was taken last year in the New Forest. This and several of the insects mentioned above are exceedingly like *Bombi* (humble bees).

Spilomyia speciosa, Rossi.—Of this beautiful exotic-looking fly there are three specimens. One from Brockenhurst, the other two from Mr. Clifton's collection. Several specimens of this species were taken in the New Forest in 1893.

Callicera ænea, F.—This is also a very fine insect, and is remarkable among British *Syrphidæ* for having the antennæ like those of a *Conops*. There is one specimen in the collection from the neighbourhood of Derby, presented by the late Mr. W. C. Hewitson. I believe only four other specimens have been recorded as taken in Britain, three of them in 1888. Ent. Mo. Mag., 1889, pp. 186 and 238.

Other species of *Syrphidæ* worthy of notice are *Psilota atra*, Fln., 1 ♂ and 2 ♀ from Lyndhurst, *Brachyopa bicolor*, Fln., four specimens from Lyndhurst and Christchurch, and *Brachypalpus bimaculatus*, Macq., 4 ♂ from the New Forest.

Of other families of *Diptera* I propose only to give details of a very few species.

Nephrocerus flavicornis, Zett.—This is one of the *Pipunculidæ*, but larger than any other British species. The venation is very like that of the genus *Pipunculus*, but the fourth longitudinal vein is forked.

This insect and *Mallota cristaloides* were taken by Mr. F. C. Adams in the New Forest last year and recorded as British in Ent. Mo. Mag., Nov. 1894, p. 255.

Among the *Conopidæ* there are several interesting species. I will mention two of them.

Conops vesicularis, Mg.—Of this species, the largest of the British *Conopidæ*, there is a nice series of both sexes from the New Forest. It is generally considered a rare species. *C. ceriiformis*, Mg.—This species is remarkable for the very great difference between the sexes; the female being slender and dark, the male much like the light variety of *C. quadrifasciata*, with the abdomen egg-yellow.

There are many other species in the collection worthy of notice, such as all the British species of *Stratiomys* and *Chrysonotus bipunctatus*, Scop., among the *Stratiomyidæ*; *Atylotus fulvus*, Mg., of the *Tabanidæ*; *Lasiopogon cinctus*, F., a fine series from the New Forest, taken last year by Colonel Yerbury, and *Dioctria Reinhardi*, W., of the *Asilidæ*; *Anthrax fenestrata*, Fln., of the *Bombylidæ*; *Oncodes gibbosus*, L., and *Paracrocera globulus*, Pz., of that strange Family the *Cyrtidæ*; *Dictenidia bimaculata*, F., and *Otenophora flaveolata*, F., &c., of the *Tipulidæ*.

All the Families of *Diptera* above referred to have been arranged, as well as the calyptrate *Muscidæ* (except the *Anthomyinæ*), but the *Anthomyinæ* and *Acalyptrata* are at present entirely unarranged.

I cannot conclude without a grateful acknowledgment of my obligations to Mr. E. E. Austen (to whom is due the arrangement of the collection) for much information both as to locality, structure, etc. In fact, he has very kindly helped me in every way, so that without his assistance this notice would have been very meagre.

Guestling Rectory: *March*, 1895.

A NEW SPECIES OF *ANOPLONGNATHIDÆ* IN THE OXFORD MUSEUM.

BY JOHN W. SHIPP.

The curious genus *Spodochlamys* was founded by Burmeister (Ent. Handb., iv, 2, p. 529) for the reception of *S. cæsarea*, Burm. (*l.c.*).

Bates (Biol. Centr.-Amer. Col., ii, 2, p. 294) describes and figures a second species, which he calls *cupreola*; this is fusco-cupreous in colour, and in this is widely distinct from *S. Poultoni*, which is of a dark olivaceous-green colour. *S. mirabilis*, Waterh., is described as "*oblonga, brunnea, æneotincta, supra dense fortiter punctata, subtus nitida.*"

The four known species now are:—

cæsarea, Burm., Ent. Handb., iv, 2, p. 529.

Hab.: Bahia.

mirabilis, Waterh., Ann. and Mag. N. H. (5), v, p. 287.

Hab.: Chiguinda.

cupreola, Bates, Biol. Centr.-Amer. Col., ii, 2, p. 294, pl. xvii, fig. 10.

Hab.: Panama, Chiriqui.

Poultoni, sp. n.

Hab.: Colombia.

SPODOCHLAMYS POULTONI, *sp. n.*

Colour dark olivaceous-green. Head very finely and closely punctured; clypeus produced in front, subquadrate, a transverse, impunctate, obsolete carina extends across from the anterior portion of the eyes; the margin of the clypeus is very slightly raised and black; the eyes are deeply sunk into the head. Antennæ pitchy, pubescent, the first joint furnished with a number of stiff golden coloured bristles at apical extremity. Trophi ferrugineous. Palpi pitchy at extremities, and metallic.

Thorax very thickly and closely punctured, the punctures being coarser towards lateral margins; anterior angles acute in front, half as wide again as long; anterior margins smooth, slightly sinuate, very slightly emarginate near anterior angles; lateral margins emarginate, margins slightly crenulate; posterior angles emarginate and sinuated; prothorax thickly pubescent, with rather long golden hairs.

Scutellum punctured, margins rather darker.

Elytra clothed with a very fine pubescence, longer than broad, rather obsoletely punctured; three slightly impunctate striæ on each elytron; very finely and thickly punctured round the lateral margins, which are slightly emarginate. Humeral prominences rather prominent, elytra terminating abruptly towards the apex.

Anterior tibiæ tridentate, pubescent and punctured, shining, with slightly coppery edges, the rest black; tarsi simple and pitchy, ungues simple. Femora ferruginous, with a coppery reflection, hairy; coxæ ferrugineous. Posterior tibiæ slightly toothed on outside edge, and furnished with a number of stiff pitchy hairs, slightly coppery, apex black, rather thickly punctured, the apex furnished with a row of stiff pitchy bristles; tarsi thickly pubescent, inner claw simple, outer bifid at apex. Pygidium covered with a thick mass of long golden hairs. Under-side ferrugineous, with a coppery reflection, thickly punctured, and clothed with a pale pubescence, abdominal segments punctured; margins impunctate, and the centre devoid of pubescence.

Long. corp., 66 mm.

Hab. : Colombia, in Mus. Hope.

I have named this species in honour of the successor of the late Prof. Westwood, as Hope Professor of Zoology in the University of Oxford.

Oxford : February, 1895.

ON *ALEURODES CARPINI*, KOCH.

BY J. W. DOUGLAS, F.E.S.

ALEURODES CARPINI, Koch.

Aleurodes carpini, Koch, Aphiden, p. 327, fig. 395 (1857); Frauenfeld, Verhandl. z.-b. Gesells. Wien, p. 795 (1867); Sign., Ess. s. l. Aleurodes, p. 383 (1868).

Head, thorax, and abdomen light orange-yellow, antennæ and legs paler; wings pure white, spotless. Expanse of wings, 3 mm.

Larva adult, or *pupa*.—Pale yellow, short-rounded-oval, convex. Dorsum

occupied with 8—9 transverse slight ridges or corrugations, divided by a faint median line; the sides below this, down to the very narrow marginal field, apparently smooth, but really delicately shagreened; the anal end with a pyriform depression, the small end outwards, the edges of the depression broadly thickened, rim-like, ultimately, as the extremity is approached, approximating yet not coalescing, but extending separately to the margin of the scale-like integument (in this respect differing from the usual V-like formation in other species); at the base of this structure is a faint tongue-shaped organ. No hairs on any part. Length, 1 mm.

Signoret does not appear to have known the species, for he only quotes Koch's description. Frauenfeld seems to have been in doubt about it, for he says it is desirable to have a fresh description, as the pupa was unknown. The description I am now able to give applies either to larva mature, or pupa, the distinction between them not being outwardly apparent. As Frauenfeld and Signoret say, the best distinctive specific characters in *Aleurodes* exist in these stages. Although absent in the ultimate condition, the usual white marginal fringe may have previously existed.

On May 28th, 1881, I found a colony of the imago on the lowest branches of a hornbeam (*Carpinus betulus*) at Bexley, Kent, but only now know the larva, as described above, by hibernating examples attached to the under-side of some leaves of hornbeam, received on December 25th last from Dr. T. A. Chapman, Hereford, who had just previously picked them up; from their habitat and peculiar structure I have no doubt they belong to this species.

153, Lewisham Road, S.E.:

January 2nd, 1895.

*Correction to my paper, "Contributions to the Study of the Liponeuridae, Lw." (Berl. Ent. Zeitschr., 1895, pp. 148-159).—I deem it my duty formally to retract my recommendation of a change of name for the Family Blepharoceridae, which, upon Loew's recommendation, I introduced into my recent paper in the Berl. Ent. Zeit., 1895, p. 148. I have just received a letter from Prof. Mik (of Vienna), who calls my attention to the fact that Loew was mistaken in his statement about the perfect structural identity of the antennæ of *Liponeura* and *Blepharocera*. In examining the antennæ of the latter genus under a compound microscope, Mik discovered in the female specimens a row of minute hairs on one side of the antenna which do not exist in *Liponeura*, and justify the name bestowed by Macquart upon the genus *Blepharocera*, that is, "provided with ciliated antennæ." Macquart actually described and figured this character, which, owing to its minuteness, has been overlooked since. The name of the genus being thus vindicated, there is no reason to change the Family name, derived from its earliest published genus. (Thus*

Asilida is derived from *Asilus*, without any particular entomological meaning being connected with the Family name). As a staunch friend of *continuity* in the matter of entomological nomenclature, I accept this solution as most welcome.

For the present I confine myself to this short statement, but I hope to publish soon a more elaborate discussion of the facts of the case, as well as some details about the structure of the two genera, communicated to me by Prof. Mik. In justice to myself, I must remark that my article had no other purpose than a critical review of the existing literature. With a stock-in-trade of *two Liponeura* only (as I stated on p. 150, line 11 from bottom), I could not attempt new discoveries.—C. R. OSTEN SACKEN, Heidelberg: April 1st, 1895.

A hunt for Phorodesma smaragdaria.—In my paper in the March number of this Magazine (p. 57 *ante*) I had no idea of wounding the susceptibilities of any one, and I have given credit to the discoverer of the larva of *Ph. smaragdaria* in this country; my intention was to give an account of an excursion in search of an insect of whose locality the published indications were "imperfect," and to give some further particulars of its natural history. In doing this I fail to see in what respect I have transgressed or laid myself open to critical remarks (p. 94 *ante*), and I appeal to the courtesy of the editors to allow the publication of this statement. The discrepancy in the food-plant of the larva in Germany and England has yet to be cleared up, and I hope some elucidation of it may be forthcoming from continental entomologists. Fobbing Marsh, where our late respected fellow student Mr. Machin found his *Ph. smaragdaria*, is a good collecting ground, surpassing even the *Hesperia lincoln* district between Benfleet and Leigh. It would be pleasing to see the locality well worked by the younger members of our craft; *Bombus castrensis* occurs there, and a look out should be kept for *Epichnopteryx reticella* and *Coleophora sibirigerella*. In the middle of September, 1893, I here collected 130 larvæ of *Ph. smaragdaria* in the space of two hours, when rain put an end to further search. This collecting ground is reached by following the line from Piteas Station towards Gravesend for about one mile, when Vange Wharf Farm is reached; a sharp turn to the left leads across some marsh land past a black granary standing boldly out by itself, and a little further on the insect hunter will find himself on one of the richest collecting grounds to be found within so short a distance from London.—HENRY A. AULD, 31, Belmont Hill, Lee, S.E.: April 8th, 1895.

[We request that any further communications on this paper refer solely to points connected with the life-history of the species. There cannot possibly be any objection to the publication of what appears to be a special locality, because Mr. Elisha has already pointed out (Trans. Ent. Soc. Lond., 1886, p. 168) that he has observed the larvæ "over an extent of ground at least thirty miles in length." Two points are especially suggestive for further investigation: firstly, the difference in the food-plant here and on the continent; secondly, the power of the larva to resist the effects of tidal submergence.—EDS.].

Black variety of the larva of Saturnia pavonia near Dublin.—In August last Dr. R. F. Scharff found on the Wicklow Mountains, near Lough Bray, a remarkable

melanic caterpillar of the Emperor moth which seems worthy of record. Except for the rings of yellow tubercles, this larva was almost entirely black, the usual green ground-colour being reduced to a frontal triangular patch and two lateral streaks on the head, a pair of dorsal spots on the mesothorax, and two spots on either side of each abdominal segment, forming a broken subspiracular lateral line.—GEO. H. CARPENTER, Science and Art Museum, Dublin: *April*, 1895.

Ceropacha flavicornis near *Edinburgh*.—It may interest your readers to know that on Saturday last (6th inst.) I took fourteen beautiful specimens of *Ceropacha flavicornis* off the stems of tiny birches in the locality in this county from which I obtained a larva last August. I also took a specimen on the 8th inst. near Wemyss, Fifeshire, where also I beat out a larva in August, 1893. In Dr. Buchanan White's "*Lepidoptera* of Scotland" it is not given for the "Forth" district, and I am not aware that any person has recorded it since. I imagine that it is not particularly scarce here if properly looked for.—WM. EVANS, 18a, Morningside Park, Edinburgh: *April* 12th, 1895.

The flight of Pyrameis cardui.—In reference to Mr. Crompton's remarks on this insect (*ante* p. 88), and also to Mr. McLachlan's editorial note, I well remember the immigration of 1879, and was at the time much struck by their almost mad flight. I was then at Bournemouth, and shall never forget the great numbers of both *P. cardui* and *Plusia gamma*. I should say that freshly emerged specimens do not fly so swiftly or so heedlessly as those that have been on the wing some time, and the foot note of Mr. McLachlan's seems to me to offer the most probable explanation of the fact.—G. T. BETHUNE-BAKER, Clarendon Road, Edgbaston: *April*, 1895.

[I shall be glad of further observations on this subject either against or in support of my suggestion, and especially from a comparative standpoint—British and foreign. My own continental experiences are quite in accord with what I have suggested, but they do not include any locality far south, with one exception. The flight of hibernated or immigrant examples always strikes me as only to be compared with that of *Bombyx quercus* ♂. Has any one ever observed *hibernating* (as distinct from *hibernated*) individuals of *P. cardui* in this country?—R. McLACHLAN].

Dichelia Grotiana, F., near *Athlone*.—Early last August I captured a number of specimens of the above species, by beating scrubby hazel and other bushes in a wood on the side of Lough Ree, near Athlone; it was rather difficult to rouse, and when it moved, it only gave a short, quick flight and then settled down again: if it was not caught upon the first flight I found it nearly impossible to start it again. I was much interested in the species as I had never previously seen it alive.—JAMES J. F. X. KING, 207, Sauchiehall Street, Glasgow: *April*, 1895.

Lestes nymphæ, Selys, near *Athlone*.—On June 27th, while collecting along the Shannon towards Lough Ree I caught a dragon fly which I strongly suspected to be the above. I have shown the specimen to Messrs. McLachlan and Morton, who both

pronounce it to be this species, although immature. Dr. Hagen, in his *Synopsis of the British Dragon Flies* (Ent. Ann., 1857), gives as the habitat "England, Ireland." I do not think there is any other Irish record for it.—ID.

Early Perlidæ.—To-day, for the first time this season, I noticed a good many *Perlidæ* about the banks of the river Clyde. On turning out my killing bottle the contents are found to be as follows:—*Capnia nigra*, female; *Teniopteryx trifasciata*, fifteen micropterous males, one female; *T. nebulosa*, three micropterous males (a form which is practically unknown elsewhere at present, and which should be looked for), five females; and *Nemoura præcox*, two pairs. The most noteworthy point in connection with this gathering is the great numerical disparity in the sexes of *T. trifasciata*; the single female was taken in union with a male, and is only the second example of the sex I have seen here. In *T. nebulosa* the reverse condition obtains, i. e., the female is usually much more numerous than the male; but the numbers are not quite so much out of proportion. These two micropterous male forms occurring together may be identified at once, without closer examination, by the more slender antennæ of *T. nebulosa*, and its longer legs, which give to the movements of that species a kind of sprawling look compared with those of the comparatively active male *T. trifasciata*.

I had been particularly interested in watching for the first appearance of these early insects this spring, with the view of ascertaining the effect, if any, which the recent prolonged icebound condition of the waters might have in the way of retarding their development or reducing their size. My first search after the ice broke up was made on the 2nd inst. I found the banks were thickly strewn all along with great blocks of ice, a foot in thickness and more. There were no *Perlidæ* then, for the thaw had been little pronounced, and intermittent. Frost continued off and on during the next ten days or so, and though much of the ice had gone when I again visited the river on the 9th, it was not till the 14th and 15th that the real change came with heavy rains, followed on the 16th by sunshine and an irruption of *Perlidæ*. The effects of the unusual conditions seemed to be of little importance as regards these insects. All the examples taken are quite up to a full average in size, and on referring to the dates of first appearances last year when the river was not frozen at all, I find March 6th is the earliest. It is difficult to imagine that the nymphs were able to continue a life of activity and growth under the ice, and it is more likely that they always attain near full growth before the winter comes on at all. But whether the implied cessation of activity which intervenes approaches the torpor of hibernation in the strict sense, or is something of a less decided character, is one of the many questions which remain to be answered with regard to the subaqueous forms of insect life.—KENNETH J. MORTON, Carlisle, N. B.: March 16th, 1895.

A query as to a peculiarity observable in certain examples of Nothochrysa capitata, F., and N. fulviceps, Steph.—The receipt of a specimen of *N. capitata* from Mr. J. H. Durrant, taken by him at Merton, Norfolk (a new locality), on July 29th, 1894, induces me to call attention to, and endeavour to clear up, a point in this species that has always been somewhat of a mystery to me. On examining a short series of dry specimens of this insect it will be noticed that in certain examples

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on about the ante-penultimate segment of the abdomen, and apparently always on the left side, there is a more or less rounded whitish mass, appearing more like something attached externally than an exudation, sometimes nearly smooth, but usually made up of coarse agglutinated granules. What is this mass? It apparently only occurs on female examples, and I am inclined to think it may be due to a rupture of the integuments, and be composed of the extruded contents of the ovaries. But why it should occur always at the same point, and (in this species) apparently always on the same side, I do not understand. *N. capitata*, though never common, is wide spread, and it should not be difficult to solve the mystery from an examination of fresh specimens during the coming season.

At one time I thought this peculiarity was confined to *N. capitata*, but I see it in two examples of *N. fulviceps* (one British, the other continental), in the same position, but in one of them it exists on *both* sides of the abdomen. I see no sign of it on examples of about a dozen other species of the genus, European and exotic. —R. McLAHLAN, Lewisham, London: April 6th, 1895.

Hydroporus marginatus, Duftschm., at Ramsbury.—Mr. Champion and I captured a few specimens of this rare *Hydroporus* at Ramsbury, Wilts, on the 14th inst. We found them by dragging the water-net amongst the refuse accumulated on the surface of a mill-dam in the river Kennet. I obtained a single specimen last year at the same locality in some flood refuse on the banks of the river. The insect is recorded from Marlborough by the Rev. Canon Fowler. —R. W. LLOYD, St. Outhbert's, Thurleigh Road, Balham, S.W.: April 17th, 1895.

Crabro gonager, Lep., and *Panzeri*, v. d. Lind., in the London district.—I captured two females of *C. gonager* on raspberry leaves in our garden at Woodfield, Streatham, last June, and forty or fifty of *C. Panzeri* from a colony several hundred strong in a hard trodden path by the side of Tooting Bec Common in July. —C. H. MORTIMER, Woodfield, Streatham, S.W.: April 10th, 1895.

Obituary.

James Mortimer Adye, F.E.S., who died at Bournemouth on March 30th, at the early age of 35, was the second son of the late W. L. Adye, Esq., J.P., D.L., of Merly, Wimborne. He was a diligent student and collector of British *Lepidoptera*, and had made some notable discoveries. It seems that last autumn, when collecting in the New Forest, he contracted a severe cold and neglected it; this was followed by pneumonia and pleurisy, and finally by phthisis. Mr. Bright, of Bournemouth, to whom we owe the particulars as to his death, informs us that Mr. Adye's collections have been left to Mr. McRae of that borough. He became a Fellow of the Entomological Society of London so recently as 1891.

Claudius Rey.—Information has been received of the death of this industrious French entomologist, who, in conjunction with the late Etienne Mulsant, was a prolific writer on *Coleoptera* and *Hemiptera*. Articles in their joint names com-

menced in 1850 and continued uninterruptedly down to Mulsant's death. C. Rey joined the Entomological Society of France in 1887, and had recently been elevated to the rank of Honorary Member. He was President of the Société Française d'Entomologie (distinct from the older Society) since its foundation in 1882. Like Mulsant, he resided at Lyons, and most of his memoirs appeared in various publications in that city.

Societies.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: *March 28th*, 1895.—T. W. HALL, Esq., F.E.S., President, in the Chair.

Mr. Ashby, Maids Vale, N.W., and Mr. H. Woods, Ashford, Kent, were elected Members.

Among the donations to the Society was a handsome Lantern and Screen, presented by Mr. Stanley Edwards, F.L.S., F.Z.S., &c. Mr. Fenn exhibited long series of *Selenia illunaria*, Hb., including a third brood. Mr. J. T. Carrington gave an interesting address, entitled, "Some Collecting Grounds and the Trees there," illustrating his remarks by a number of lantern slides, admirably executed and kindly lent by Mr. Fred. H. Evans.

ENTOMOLOGICAL SOCIETY OF LONDON: *March 20th*, 1895.—Professor RAPHAEL MELDOLA, F.R.S., President, in the Chair.

Mr. Claude Morley, of London Road, Ipswich; Mr. Herbert E. Page, of 14, Nettleton Road, New Cross, S.E.; Mr. W. W. Smith, of Ashburton, Canterbury, New Zealand; and Mr. Henry Tunaley, of 30, Fairmont Road, Brixton Hill, S.W.; were elected Fellows of the Society.

Mr. H. St. John Donisthorpe exhibited a living female of *Dytiscus marginalis* with elytra resembling those of the male insect. Dr. Sharp said he had seen this form before, but that it was very rare in this country, though abundant in some other parts of the palaearctic region. Professor Stewart asked if the genitalia had been examined. Mr. Champion stated that Mr. J. J. Walker had collected several females of an allied species (*Dytiscus circumflexus*) at Gibraltar with elytra resembling those of the male. Dr. Sharp exhibited specimens of *Brenthus anchorago* from Mexico showing extreme variation in size. He remarked that the males varied from to 10½ mill. in length to 51; the female from 9; mill. to 27 mill. In the male the width varied from 1½ mill. to 4 mill. The length therefore varied from about 5 to 1, and the width from 3 to 1 in the male. Mr. Blandford commented on the difficulty of mounting minute *Lepidoptera*, *Diptera*, *Neuroptera*, etc., and exhibited samples of strips of material which he had found most suitable for the purpose of staging minute insects. He said his attention had been called to this method of mounting by the receipt of specimens from Dr. Fric of Prague. On examination of the material he found it to be a fungus, *Polyporus betulinus*. He stated that Lord Walsingham had expressed his satisfaction with this material and had sent him specimens, similarly mounted, from Zeller's

collection. Mr. McLachlan remarked that he thought the material exhibited preferable to artichoke pith, which had been used for a similar purpose. Mr. Goss exhibited a species of a Mantid, *Pseudocreobotra Wahlbergi*, Stål, received from Captain Montgomery, J.P., of Mid-Dlovu, Natal. He said he was indebted to Mr. Champion for determining the species. Mr. Frederick A. A. Skuse communicated a paper, entitled, "On a Colour variety of *Heteronympha Merops*, Fab., from New South Wales," and sent coloured drawings of the typical form and the variety for exhibition. Mr. Oswald H. Latter read a paper, entitled, "Further Notes on the Secretion of Potassium Hydroxide by *Dicranura vinula* (imago) and similar Phenomena in other *Lepidoptera*." The paper was illustrated by the oxy-hydrogen lantern. Professor Meldola congratulated Mr. Latter on the thorough way in which he had worked out his experiments, and said that in view of the small quantity of material at his disposal the concordance in the results was remarkable. He added that Mr. Latter had, for the first time, proved the secretion of free potassium hydroxide in the animal kingdom. Mr. Blandford, Mr. Merrifield, Mr. Latter, and Dr. Dixey continued the discussion. Mr. Merrifield read a paper, entitled, "The results of Experiments made last Season on *Vanessa C-album* and *Limenitis Sibylla*." This was illustrated by an exhibition of specimens of *L. Sibylla*, and a long series of *V. C-album*, to show the effects of temperature in producing variation. Dr. Dixey said that many of the forms of *V. C-album* exhibited reminded him of *V. C-aureum*, a Chinese species, which he believed to be the oldest form of the genus. He thought that much of the variation shown in this series of specimens was due to atavism, and was not altogether attributable to the effect of temperature. Mr. Barrett said he was interested to find that one of the forced forms of *L. Sibylla* was similar to a specimen he had seen which had emerged from the pupa during a thunderstorm. In connection with Mr. Merrifield's paper Mr. F. W. Frohawk exhibited a series of 200 specimens of *V. C-album* bred from one female taken in Herefordshire, in April, 1894. The series consisted of 105 males and 95 females, and included 41 specimens of the light form, and 159 of the dark form. Professor Meldola in proposing a vote of thanks to Mr. Merrifield, Dr. Dixey, and Mr. Frohawk said that he was glad to think that the subject of Seasonal Dimorphism, which had been first investigated systematically by Weismann, was receiving so much attention in this country. He was of opinion that the results hitherto arrived at were quite in harmony with Weismann's theory of reversion to the glacial form, and all the evidence recently accumulated by the excellent observations of Mr. Merrifield and others went to confirm this view as opposed to that of the direct action of temperature as a modifying influence. Mr. Merrifield, Mr. Barrett, and Dr. Dixey took part in the discussion which ensued.

April 3rd, 1895.—The President in the Chair.

Mr. C. J. Gahan exhibited two examples, male and female, of a rare Prionid beetle, *Chariea cyanea*, Serville, which had been kindly sent to him for examination by Mons. René Oberthür; and stated that Lacordaire was mistaken with regard to the sex of the specimen which he described in the "Genera des Coléoptères." He pointed out that the elytra of the male were relatively much shorter than those of the female; and that the joints of the antennæ from the third to the tenth were biramose. Mr. Gahan also exhibited two species of the genus *Decarthria*, Hope,

and said he believed these were the two smallest species of Longicorns known. Dr. Sharp exhibited the soldiers and workers of a species of Termites found by Dr. Haviland in South Africa. He stated that these insects possessed eyes and worked in daylight like Hymenopterous Ants, and that in habits they resembled harvesting ants by cutting grass and carrying it into holes in the ground. Dr. Sharp said that although these holes were probably the entrance to the nests, Dr. Haviland could not find the actual nest, even by prolonged digging, so that the winged forms were still unknown. He thought this species was probably allied to *Termes viarum* of Smeathman, in which the soldiers and workers possessed eyes, and had been observed by Smeathman to issue from holes in the ground, and whose nest could not be discovered. Mr. McLachlan observed that it was possible there might be species of Termites without any winged form whatever. Mr. Rye called attention to the action of one of the Conservators of Wimbledon Common, who, he stated, had been destroying all the Aspens on the Common. He enquired whether it was possible for the Entomological Society to protest against the destruction of the trees. Mr. Goss said he would mention the matter to the Commons' Preservation Society. Mr. Francis Galton, F.R.S., read a paper, entitled, "Entomological Queries bearing on the question of Specific Stability." The author said that the information desired referred to (1) Instances of such strongly marked peculiarities, whether in form, in colour, or in habit, as had occasionally appeared in a single individual in a brood; but no record was wanted of monstrosities, or of such other characteristics as were clearly inconsistent with health and vigour; (2) Instances in which any one of the above peculiarities had appeared in the broods of different parents. In replying to this question, he said it would be hardly worth while to record the sudden appearance of either albinism or melanism, as both were well known to be of frequent occurrence; and, (3) Instances in which any of these peculiarly characterized individuals had transmitted their peculiarities, hereditarily, to one or more generations. Mr. Merrifield stated that he received some years ago, from Sheffield, ova of *Selenia illustraria*, the brood from which produced, in addition to typical specimens, four of a dark bronze colour, and from these he bred a number of specimens of a similar colour. Dr. F. A. Dixey referred to a variety of the larva of *Saturnia carpinii* with pink tubercles. He said the imago bred from this larva produced larvæ of which ten per cent. had pink tubercles. Professor Poulton said he had found larvæ of *Smerinthus ocellatus* with red spots, and that this peculiarity had been perpetuated in their descendants. Mr. McLachlan, Canon Fowler, and Professor Meldola made some further remarks on the subject. Mr. G. F. Hampson read a paper by Mr. C. W. Barker, entitled, "Notes on Seasonal Dimorphism in certain species of *Rhopalocera* in Natal." Mr. Merrifield said he was of opinion that a record of the temperature at different seasons would be a very desirable addition to observations of seasonal dimorphism. Mr. Hampson said he believed that temperature had very little to do with the alteration of forms. At any rate, according to his experience, in India the wet season form succeeded the dry season form without any apparent difference in the temperature. Professor Poulton remarked that the apparent temperature as felt must not be relied upon without observations taken by the thermometer. Dr. Dixey, Mr. Barrett, Dr. Sharp, and Professor Meldola continued the discussion.—H. GOSS and W. W. FOWLER, *Hon. Secretaries*.

RANDOM NOTES ON LEPIDOPTERA IN 1894.

BY EUSTACE R. BANKES, M.A., F.E.S.

The past season has been, in this part of the country, about the worst, from a Lepidopterist's point of view, that I ever remember. After a glorious spell during the latter half of March and first fortnight of April, which, with the previous mild weeks, made the spring, up to a certain date, no less early than the phenomenal one of 1893, the weather was, on the whole, terribly wet and stormy for the rest of the year; our rainfall was some 10 inches above the average, and still more largely in excess of that of the preceding year. On the occasional fine days when there seemed a chance of making a good "bag," one nearly always had to put up with many disappointments, both *Macro-* and *Micro-Lepidoptera* alike being for the most part exceptionally scarce in all stages, and some of the most interesting local species not being observed at all.

The following stray notes refer to the Isle of Purbeck, unless it is otherwise stated:—

As regards the *Diurni*, *Pieris brassicæ* was, as in so many other districts, chiefly conspicuous by its almost total absence; only one crossed my path during the year, but I fancy that I caught a glimpse of another in the distance! Of *Colias Edusa* none were seen in the early summer, and but three or four in the autumn, whilst *Vanessa cardui*, which, as mentioned in my note on p. 210 of the last volume, appeared in goodly numbers in the beginning of June, and which, had not the wet summer been so fatal to the larvæ, would doubtless have been abundant in August and September, was then only occasionally seen. Early in May a search, on behalf of a friend, for larvæ of *Hesperia Actæon* produced a limited number, of very various sizes, in rolled leaves of *Brachypodium pinnatum*, but later on the imago was not nearly so common as in the previous summer.

Of the *Nocturni*, a specimen of *Acherontia Atropos*, which had apparently flown to a light inside a closed window, was picked up stunned in a street in Corfe, and a male *Porthesia chrysorrhæa* was taken at light at Swanage. *Lithosia griseola*, and its var. *stramineola*, which in my experience seems to outnumber the type, were more plentiful than usual, as I think were some other lichen- and moss-feeders; this was probably due in a measure to the luxuriance of their food, whereas in 1893 many such larvæ had perished, owing apparently to the fact that the excessive drought prevented them from obtaining sufficient nourishment.

The *Geometra* call for little notice ; in spite of careful work only one example (and that in wretched condition) of *Eupithecia constrictata* was met with, and larvæ of *E. subciliata* proved very scarce. Two or three *Cleora lichenaria* were reared, and some beautiful *Cidaria siterata* paid the penalty of their partiality to ivy bloom.

Among the *Noctua* a few aristocratic species occurred. A fine *Triphæna subsequa*, disturbed from the edge of a sandpit, was secured by one of two friends, who during July collected on the Dorset coast a nice supply of the larvæ of *Heliothis peltiger*, and subsequently bred, between August 20th and November 11th, a splendid and very variable series, which was exhibited at the meeting of the Ent. Soc. Lond. on the 6th inst. Through their kindness I had the pleasure of finding a few larvæ and breeding half-a-dozen moths from September 2nd to November 13th, and also took two imagines at large. The larvæ, which showed a wonderful range of ground-colour from deep green to bright pink, and reminded one strongly of the variation shown by the larvæ of *Platyptilia acanthodactyla*, were, with the single exception of one on *Hyoscyamus niger*, all found on *Ononis arvensis*. Both in nature and in confinement they preferred the fresh flowers, though, failing to get these, they took readily to the tender green seed-pods, but all forms alike refused to touch the leaves, thus proving that no reliance must be placed on Mr. Reading's statement in Newman's "British Moths," p. 438 (where, in column 2, line 26, there is an evident misprint of "No. 2" for "No. 1") that the pinkish larva feeds on the bright flowers of *Ononis spinosa*, and derives its colour from their hue being shed through its transparent skin, whilst the green larva feeds on the leaves and seeds of one or more of its food-plants. The ground-colour and the skin are of such natures that the former clearly cannot depend directly on the colour of the food devoured by the larva, though it is doubtless attributable to protective resemblance : both the green and the pink varieties are equally well protected, though under different conditions, the former when at rest among the green leaves, and the latter when engaged in feeding on the pink flowers. Although, in our joint experience, every living pupa had produced a moth by the middle of November in spite of the facts that none were forced, and that mine were kept in a very cold outhouse, one can hardly doubt that some must, in nature, hibernate in the pupa state, and that the insect is thus "semi-brooded twice a year," as stated by Mr. Reading (*op. cit.*). My lucky capture of a specimen of *H. armiger* in East Dorset has already been chronicled (*ante* p. 49). Odd specimens of *Bryophila muralis* were to be found

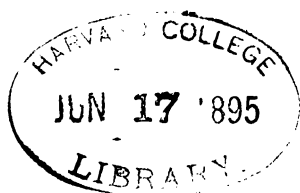
by searching an old wall, and larvæ of *Chariclea umbra* occurred on rest-harrow. Owing to illness, entomology was out of the question for me during most of August, when sugar was yielding so rich a harvest of rarities in the Isle of Wight, but later on moths were much less common than usual at ivy bloom, some four or five *Xylina petrificata* being the most noteworthy, with the exception of *Dasycompa rubiginea*, of which by constant work eight specimens were boxed in the same spot of very limited extent where it has occurred, though in still smaller numbers, in previous years. I have failed to find it elsewhere, and have never seen it either at sugar in the autumn or spring, or at sallow bloom, but I hope that the present attempt to hibernate the moths and obtain eggs will be more successful than my previous one. As a rule *Cerastis spadicea* swarms with us at ivy bloom, while *C. vaccinii* is somewhat scarce, but the tables were now turned, the former being far from plentiful, whereas the latter was not uncommon.

Few good *Pyrallides* or *Crambites* fell to my lot; five or six *Odontia dentalis*, and some *Stenia punctalis*, as well as single examples of *Ennychia cingulata*, *Ebulea stachydalis*, and *Botys asinalis*, were netted, and a nice series of *Scoparia mercurella* included one or two of the handsome variety *concinnella*. *Salebria semirubella* was met with rather commonly in one spot, though not until it was already in indifferent condition, and *Nephopteryx genistella*, which seemed to have almost reached the vanishing point in 1893, occurred in the larval state on a few gorse bushes.

The *Pterophori* were represented by, amongst others, *Agdistis Pennetii* (1) and a few *Oxyptilus teucarii*, *O. parvidactylus*, *Pterophorus spilodactylus*, and *P. baliodactylus*; but since 1890 *P. paludum* has successfully eluded me, nor do we seem to get much nearer the discovery of the life-history or food-plant. One *Platyptilia cosmodactyla* was captured by a friend, but the larvæ and pupæ collected by myself on flower spikes of *Stachys sylvatica* in the hope of breeding it, yielded nothing rarer than the closely allied *P. acanthodactyla*.

The general depression seemed also to have affected the *Tortrices*. Representatives of *Penthina sellana*,* Wilk., *Semasia Janthinana* (1), *Endopisa pisana*, *Dichrorampha alpinana*, Tr. [= *politana*, Wilk.] (1), *Eupæcilia atricupitana*, *Argyrolepis zephyrana*, and *Conchylis Francilana*, were taken along the coast, *Cnephasia conspersana* was at home

* M. Ragonot (Ann. Soc. Ent. de France, lxlii, 201-2 [1894]) treats *sellana*, Hb., Froel., as irrecongnisable, and sinks *sellana*, Gn., H.-S., Wilk., Stn., Hein., as identical with *oblongana*, Hw. (= *marginana*, Hw.), but in any case the *sellana* of British authors, a species well known to many of us, is, in my opinion, undoubtedly distinct from *oblongana*, Hw., and from all other species found in this country (cf. Ent. Mo. Mag., ix, 128).



June, 1895.

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on a strip of rough undercliff, and a larva found feeding in a spun shoot of *Sedum telephium* just beyond the limits of Purbeck produced a fine *On. pascuana*. Special attention was paid to *Dichrorampha senectana*, and by working "like a black" in its horribly steep and rocky haunt, whenever the weather made success at all possible, I secured a few, but, as usual, *very* few, and a part of them in worthless condition: it has surprised me to find that its true flight time is apparently in the late evening when the spot has for long been in deep shade, though it has also been taken on the wing in the late afternoon when the last gleams of sunshine were giving place to shadow. As *Chrysanthemum leucanthemum*, which is doubtless its food-plant where I meet with the insect, grows there very sparingly, my courage has not yet been sufficiently screwed up to institute a search for the larvæ in the roots, for fear of exterminating the species,* as well as its ally *D. acuminatana*. On August 4th I had the pleasure of netting four examples of *D. quæstionana*, Z. (= *alpinana*, Wilk.), amongst tansy; this is a welcome addition to the Purbeck list, and the only previous record from the county is "Taken at Lulworth by J. C. Dale on June 18th, 1840." Over its food-plant, *Jasione montana*, a nice little set of *Eupæcilia pallidana* was taken on the wing by waiting upon it in the evenings.

Among the more distinguished *Tineæ*, one *Diplodoma marginipunctella*, together with four *Ecophora lambdella*, were the best results of two visits to a hedge composed of living and dead wood and old gorse bushes, and an outhouse yielded two *Tinea nigripunctella*. Cases of *Psyche villosella* seemed scarcer than usual on the heath, as did those of *Fumea roboricolella* in a saltmarsh where a colony exists, nor did a diligent hunt in the head-quarters of *Epichnopteryx pulla* reveal even a single case. In April *Micropteryx Kaltenbachii*, to the tune of some half dozen perfect moths and a few cripples, emerged, the larvæ having been found in hazel leaves in the previous spring, whilst in early May larvæ of *Lampronia quadripunctella* were rather common in shoots of garden "York and Lancaster" roses: the moths emerge as a rule before 9.30 a.m., and fly in the morning sunshine. In July a few *Depressaria nanatella*, one *D. pulcherrimella*, and some *Gelechia lentiginosella* appeared in the breeding jars, and spun shoots of *Lotus major*, collected early in June, furnished me with a short set of *Anacamptis vorticella*, to say nothing of a longer one of *Tortrix*

* Since the above was written I have found that Sorhagen in "Die Kleinschmetterlinge der Mark Brandenburg" records *D. senectana* as taken in the evening amongst tansy at Hamburg; it is therefore probable that, like so many of its congeners, it is not confined to a single food-plant, but favours different closely-allied ones in different localities.

viburnana. *Bryotropha mundella*, *B. umbrosella*, *Æcoconia quadripunctella* (1), and *Galanthia variella* were numbered among the victims, and no end of time and trouble was devoted to working for young larvæ of *G. senescens* and one or two of its congeners, and studying their habits and variation, but they proved as slippery customers as ever to secure, and no less difficult to rear! *Coleophora conyzæ* and *C. Fabriciella*, which is especially partial to white clover (*Trifolium repens*), were present, whilst from cases on heads of purple clover (*T. pratense*) gathered in 1893 *C. deauratella*, which seems difficult to rear and apt to come out dwarfed, was bred very sparingly: *C. ochreella* was noticed in the larval state in one spot, *C. obtusella* was bred from old seedheads of *Juncus maritimus* gathered in May, and two or three examples of *Elachista atricomella*, and *Lithocolletis ulicicolella* fell to the net. My attempts to find *Lita salicorniæ* in our Purbeck saltmarshes were rewarded by the capture of two imagines, and numbers of the large form (from *Plantago maritima*) of *L. plantaginella*, though considerably the worse for wear, but repeated endeavours to obtain *Acrolepia marcidella* in any stage, in the spot where three individuals have been brought to bag, were, as of old, altogether in vain. Even in the very worst seasons some few species are always sure to appear in unwonted numbers, and such was the case, for here and there, in the spring, the gorse-bushes were *white* with the larval webs of *Galanthia grandipennis*, and on one grand night in the beginning of July *Xystophora lutulentella* (♂) fairly swarmed, though, as usual, an enormous percentage was sadly worn. In the autumn it was a treat to again, after an interval of several years, come across the larva of *Epermenia daucella* in moderate quantity in one spot, and to find that *Trifurcula pallidella* (♂) was still procurable in its old haunts: the females of both this and *X. lutulentella* appear to be extremely rare, and hitherto I have in vain watched those that have been met with in the hope of seeing them oviposit, and have repeatedly failed to discover the larva of either species. Cases of *Coleophora adjunctella* were unaccountably scarce, and during the last two seasons *Cosmopteryx Schmidella* has, as far as my experience has gone, been able to prove an *alibi*, not a single larva or even an empty mine having rewarded my search, whilst, to the best of my belief, the imago has never yet been captured in Britain. Larvæ of *Nepticula acetosa*, which had baffled all our efforts to turn it up in Purbeck until the Rev. C. B. Digby chanced upon it when staying with me in August, 1892, were not uncommon in two small spots, but the insect is surprisingly local. It appears to have a succession of broods, and to be always impatient

to reach the perfect state, a proportion of larvæ collected even in September producing moths the same year if kept indoors, though in a cool place. The rest, however, of the autumn leaf-mining larvæ, *Lithocolletidæ*, *Nepticulidæ*, &c., seemed to be exceptionally scarce, and such was also the experience of friends in other parts of England, both in the North, Midlands, and South; perhaps it is hardly to be wondered at when one recalls the ceaseless torrents of rain, and the absence of sunshine, that prevailed when the imagines of the earlier broods should have been pairing and ovipositing.

Expeditions to happy hunting grounds outside Purbeck were not very profitable. From the New Forest district I brought home a few larvæ of *Asphalia ridens*, some four or five of *Phycis roborella* found spun up for pupation in a cluster of cocoons under the rotten bark of a long-felled oak log (How they all arrived there is a mystery to me!), and about half a dozen each of *Tortrix cratægana* and *Pædisca rufimitrana*, but there was a far greater dearth of insect life than I have ever before seen there in the middle of June. At Bloxworth (Dorset) the Rev. O. P. Cambridge, with whom I was staying just before Midsummer, caught one *Penthina fuligana* and a solitary *Eupæcilia Geyeriana*, besides which our bag included a few *Scoparia pallida*, *Ancylis diminutana*, *Pædisca bilunana*, *Stigmonota Germana*, Hb. (2), *Epermenia Illigerella* (1), and a case of *Coleophora palliatella*, found spun up on a willow leaf, which yielded me a moth in due course. At Portland *Scoparia mercurella* var. *portlandica* (totally distinct from *Sc. phæoleuca*, Zell., which is unknown in Britain) was locally much commoner than usual, and I succeeded in boxing an example of the rare *Tinea subtilella*, which was at rest in a crevice of the rock. During the last week of November I had the pleasure of an introduction to *Cheimatobia boreata* in Kent, where it seems to have been more abundant than usual, and got both sexes in fine condition: they were mostly boxed off the birch bushes and surrounding brushwood after dark, and a fair number were taken *in cop.* in sheltered spots.

In the above jottings on several of the more interesting *Lepidoptera* met with during the past year, it is needless to allude to one or two species about which I hope to contribute separate notes, but it may be added that, thanks to help received, chiefly through the generosity of friends, from other parts of Britain, my breeding cages produced such welcome things as *Melitæa Cinxia* (1), *Endromis versicolor*, *Lophopteryx carmelita*, *Notodonta chaonia*, *N. trimacula*, *Acronycta alni*, *Tæniocampa leucographa*, *T. miniosa*, *Pericallia syringaria*, *Emme-*

lesia unifasciata (five, which emerged July 15th to August 11th from pupæ received in February, 1892!), *Phyllocnistis suffusella*, *Lithocolletis cerasicolella*, besides the very rare *L. distentella* and *Asychna æratella*. From a present of a bountiful supply of galls on stems of *Polygonum aviculare* containing full-fed larvæ of the last-named, collected on August 10th and 12th, 1893, in a sloping field on the downs to the north of Shoreham, Sussex, in which an expected crop of oats had to a great extent failed to come up, and the insect and its food-plant had *not* failed to make the most of their opportunities for running riot, only eleven perfect specimens (varying greatly in size) and one or two wretched cripples emerged last season, the first not till August 21st, the last on September 8th. My want of better success in breeding them, as also to some extent the lateness of their appearance, was almost certainly due to their being kept till July in too shady, and therefore too cool, a spot, where the direct rays of the sun could not reach them, and the thought occurs that the same cause may have brought about the ill success of others who enjoyed like opportunities, for a similar batch placed by a judicious friend, who alone escaped disappointment, right out in the open and fully exposed to the sunshine, yielded a large percentage of moths between July 7th and August 16th. Probably not one would have graced my setting board had I not finally, in despair, brought the larvæ indoors, and forced them with heat and the direct rays of the sun. "*Experientia docet*," but it is distressing when the "*experimentum*," from which alone the necessary experience can be derived, can *not* be first made "*in corpore vili*!"

The Rectory, Corfe Castle, Dorset :

March 15th, 1895.

PRENOLEPIS VIVIDULA, AN INTRODUCED ANT NEW TO BRITAIN.

BY G. C. BIGNELL, F.E.S.

Prenolepis vividula, Nylander.—It is interesting to record the occurrence of this ant, a native of Egypt, Palestine, Texas, Australia, etc., in my house, and doubtless introduced with the palms now imported into this country, as I think the following account will show.

The history, so far as I am concerned, of the two specimens I have taken, may be a warning to others who find insects in their room after a day's collecting, not to jump at a conclusion that they must

have brought them home, as I did. On April 20th I visited Cannwood, in the afternoon it came on to rain, and in walking through the wood I picked up a handful or two of dried leaves and thrust them in my pocket to keep other things steady. On my arrival home, very wet, I emptied the contents of my pockets on to a table in my study; that night my daughter arrived from London, and brought home a young growing palm in a pot, and placed it on the same table; next day I saw these two ants running about over the old oak leaves. I secured them and mounted them, and not being able to recognise them, I sent them to Mr. E. Saunders as a species captured in Cannwood; he, however, identified them as above. I have no doubt they were brought home with the palm, which was purchased the same day from Messrs. Ponsford and Son, 451a, Brixton Road, S.W.

Stonehouse, Plymouth:

May 13th, 1895.

OTIORRHYNCHUS AUROPUNCTATUS, GYLL., AN ADDITION TO
THE BRITISH LIST.

BY G. C. CHAMPION, F.Z.S.

Mr. Halbert, of the Science and Art Museum, Dublin, recently sent me some specimens (♂ ♀) of an *Otiorrhynchus* from Ireland which he could not satisfactorily identify. The insect in question is referable to *O. auropunctatus*, Gyll., an addition to the British list. Mr. Halbert informs me that it is locally common near Dublin, principally on the coast in the Counties of Dublin, Meath, and Louth, and that he had quite recently taken some specimens at Portmarnock. He states that he had found it in moss, and by beating hedges and trees, and also by sweeping. It seems an extraordinary fact that so conspicuous an insect has not been noticed in Ireland before. The species had been named for him some time ago as *O. maurus*, Gyll., which has been recorded from Co. Down, Ireland, by myself, from an example taken on Slieve Donard in 1875.*

O. auropunctatus, Gyll., which includes *O. fossor* and *O. rufipes*, Boh., according to Stierlin (Rev. der Europ. Otiorrhynchus-Arten, p. 89), is a common species in the Pyrenees, and occurs also in Spain and in the Auvergne, France. It has been taken in abundance by Dr. Sharp and myself at Vernet, in the Pyrénées-orientales, at elevations between 2000 and 7000 feet. *O. auropunctatus* somewhat resembles *O.*

* cf. Ent. Mo. Mag., xii, p. 82.

tenebricosus, Herbst, but is much smaller and less elongate, and has the thorax and elytra more roughly sculptured, the elytra coarsely punctate-striate. From *O. atroapterus*, De Geer, which is about the same size and shape, it may be known by the rougher sculpture and the undilated apices of the anterior tibiæ; and from *O. maurus*, Gyll., by the much longer limbs and the more attenuate elytra.

Liosoma pyrenæum, Bris. (= *troglodytes*, Rye), and *Cathormiocerus socius*, Boh., possess a somewhat similar extended geographical distribution; both these insects, however, are extremely local in Britain.

I am indebted to M. Louis Bedel, of Paris, for corroborating the determination of this interesting addition to the British list.

Horsell, Woking:
May 15th, 1895.

FOOD-PLANTS OF *ELACHISTA CERUSELLA*.

BY C. G. BARRETT, F.E.S.

In 1854 Mr. Stainton wrote (*Insecta Britannica*, Lep. Tin. p. 259) "the larva feeds in the upper part of the leaves of the common reed (*Arundo phragmites*) at the beginning of August; the spring brood of the larva has not yet been observed." In the *Nat. Hist. Tineina*, vol. iii, p. 94, he says, "Those who walk along the bank of a stream where the common reed, *Arundo phragmites*, is growing, can hardly fail to notice in April or the beginning of August some conspicuous large white blotches on the upper-side of the broad leaves of the reed; these blotches are the mines of the larva of *Elachista cerusella*." And again, "there are two broods in a year, the larvæ feeding in April and again at the end of July and beginning of August."

Within the last few days my friend Mr. W. C. Boyd has called my attention to the somewhat obvious and well known fact that the leaves of the common reed (*Arundo*) die down in the winter and have not grown up in April, from which circumstance it seems probable that the larvæ cannot feed in them at that time. But he has brought me the conspicuous mines in the broad leaves of *Phalaris arundinacea* (reed grass or reed canary grass) in which the larvæ of this species were feeding, and from which they emerged a week ago, pupated, and have to-day (May 14th) commenced to emerge as moths. Mr. Boyd tells me that in the place from which these were obtained there is no *Arundo*, nor any within three quarters of a mile, and that both generations of the larva must, in this place, surely feed on the

Phalaris. It is certain also that in the August brood it feeds in leaves of reed. This is confirmed by Lord Walsingham, by the late Mr. Machin who collected larvæ in abundance, and by my own experience in the Norfolk Fens, where the insect is plentiful; but how the larvæ of the first brood feed in those localities in which the second brood attacks the reed is still a matter of conjecture. Probably, however, *Phalaris* is almost everywhere available.

So far as I can ascertain, Mr. Boyd's interesting observation has not previously been recorded in this country. Entomologists abroad, however, have been more observant. Sorhagen (Kleinschmetz. Mark Brandenburg) records it on the two plants and in both broods. Snellen, besides these two food-plants, adds "*Holcus*, *Festuca*, *Poa*, and *Agrostis*." (It is difficult to imagine this large larva in a leaf of *Agrostis*). Hartmann and Wocke record two broods, both (apparently) feeding in the reed as well as the *Phalaris*, but no one hints at any alternation of food-plants; Kaltenbach and Hofmann only give *Arundo*, the latter quoting Stainton. Several of these references are from Lord Walsingham's library, by the kindness of Mr. Hartley Durrant.

39, Linden Grove, Nunhead, S.E.:

May 14th, 1895.

SOME REMARKS

ON THE HABITS OF *ÆPOPHILUS BONNAIRII*, SIGN.

BY JAMES H. KEYS.

After an interval of nearly five years I have again the pleasure to record the capture of *Æpophilus Bonnairii*, Sign., and this time with rather better results. On April 28th I took a mature specimen near the old locality, but about thirty paces further seawards than the example last noted (*cf.* Ent. Mo. Mag., xxvi, p. 247). On comparison of the two I was struck with the fact that whereas my old specimen taken in the month of August showed signs of wear about the apex of its elytra, the example now taken in the month of April was quite perfect; it was also more active when alive.

On the next day I felt constrained to go again, and to search as far out seawards as possible. Accordingly, climbing over a reef of rocks which run out a considerable distance into the sea, I came to a transverse channel, the bottom of which was strewn with large boulders, with smaller stones scattered between them, and with the interspaces filled with a mixture of gravel, broken shells and a

little clayey matter. Over the whole (the gravel excepted) there was a thin coating of low algaic growth, as well as the usual complement of higher *Algæ* to be found in such places. I went to work here, and the first stone lifted revealed a dozen or more undeveloped specimens on its under-side. Beneath the stone adjoining, in a space that could have been covered by a crown piece, there was a group of the undeveloped forms, with a single mature specimen in their midst, just as one often finds a family of earwigs, or sees a hen surrounded by her chickens. On exposure to the light they at once commenced to scamper off. Two more precisely similar cases were observed, and two or three mature specimens were taken separately in the gravel; the undeveloped forms also were frequent, in companies and singly, without any adult near them.

To give as good an idea as I can of the conditions under which *Ædopophilus* lives, it will perhaps be interesting to mention that I commenced to work at 2.45 p.m.; by about 3.30 the flowing tide was wetting my feet as I knelt down, and I had to beat a retreat, and in a few minutes more the bottom of the channel was covered. High tide occurred that night at 8.38, from which it will be seen that the insects are under water for some ten hours out of the twelve necessary for ebb and flow.

On April 30th I again went to the habitat, and by removing one of two large stones lying at right angles to each other, secured five mature specimens in the compost that was lying between them; but, on May 8th, I had my greatest haul, when I caught no less than twenty-five mature specimens.

It may be further observed with regard to condition, that there was no foul mud near at hand, and the stones with the insects beneath were generally embedded slightly in the gravel, and invariably in such a position that the water drained quickly away with the ebbing tide.

I have experimented with living specimens both young and mature, in the hope of seeing them feed, but they are constantly out of sight on the under-side of the stone provided for them; and although I looked several times daily I have not been able to detect their proboscis in operation. They hide in companies in little holes in the stone, packed together as closely as possible, or rest on the algaic growth thereon. I observed one specimen with its head stuck right into this matter, and it seems probable that it is on one or other of these low *Algæ* that they feed. At all events, there is nothing else that I can see on which my living specimens can subsist, and they are as lively and fresh after six days' captivity as when first brought home. Grow-

ing on the same stone I have three species of *Algæ* (a *Fucus*, and a red and an olive kind), but these they do not touch I am quite sure. Once only when examining them did they remain quietly for a second or two, then one of the adults awoke to the fact, and running amongst the larvæ touched them on either side with right and left antenna alternately, and the usual stampede followed instantly.

7, Whimble Street, Plymouth :
May 13th, 1895.

NOTES ON SOME BRITISH AND EXOTIC COCCIDÆ (No. 28).

BY J. W. DOUGLAS, F.E.S.

THE MALE OF ORTHEZIA INSIGNIS.

In this Magazine, vol. xxiv, p. 169 (1888), I described and figured the male and female of this new species from specimens sent to me by Mr. E. T. Browne, who found them on a *Strobilanthes* in the Economic House at the Royal Gardens, Kew. The male, instead of the pencil of long hairs at the caudal extremity of the body which is normal in all the previously known species of the genus, had two long projecting setæ covered with waxen matter, and mainly on account of this different structure I named the species "*insignis*."

I received, in February last, from Mr. E. E. Green, Eton, Pundaloya, Ceylon, a reprint of a paper by him, published in the "*Tropical Agriculturist*," Colombo, 1895, in which it is stated that this insect has appeared in large numbers in the Botanical Gardens at Peradeniya, on "*Lantana*."

"Efforts are being made there to keep it in check, but as it has appeared on *Lantana* in the neighbourhood, there is no knowing where it will stop. It has fortunately as yet shown no taste for either of our two most important products—tea and cacao. Coffee, however, does not share this immunity, for trees of Liberian coffee have been observed to be infested with the insect, and we have no reason to suppose that the Arabian species will be less liable to attack."

Mr. Green gives three figures of the female at different ages and in different aspects, which represent that sex correctly, and one figure of the male, which is certainly not the same as that I described and figured. He says of his male:—

"Fig. 5 is a greatly enlarged figure of the male insect. I believe this has not previously been described. In Mr. Douglas' original description of the *Orthezia*, the male of some other insect, probably that of the 'mealy bug' (*Dactylopius*), has evidently been erroneously tacked on to this species. The real male is a delicate little fly; slaty-grey in colour; antennæ very long and slender, 10-jointed, the two

basal joints very short, the others greatly elongated; legs long and slender; a single pair of wings, rather opaque, dusted with greyish powder; a tuft of long silky filaments at the end of the body. Eyes black, with numerous facets. The adult male insect has no mouth, and consequently takes no food in this stage."

Upon reading this, I wrote to Mr. E. T. Browne, asking him what evidence there was that the insects he had sent to me in 1887 as the males of *Orthezia insignis* were really of that species, and he returned the following reply:—

"It was solely upon the authority of Mr. S. J. McIntire (who unfortunately passed away in November, 1893) that the winged insects were considered to be the males of *O. insignis*. He first found them, and was often at Kew collecting specimens. I remember being with him there one day, and we saw them flying about the plants on which the females were living. I do not think he saw any copulation."

I then wrote to Mr. Green, enquiring if he was certain that the *Coccid* he figured as the male of *O. insignis* was really so. While waiting his reply, I received from Mr. C. P. Lounsbury, of Amherst, U. S. A., a copy of his paper, entitled, "A New Greenhouse Pest," reprinted from the "Thirty-Second Annual Report of the Massachusetts Agricultural College for 1894," in which a large space is devoted to *Orthezia insignis*, and two plates illustrate the species in all stages of growth. The ♀ agrees exactly with my species, and so also does the ♂! I then wrote to Mr. Lounsbury, informing him of Mr. Green's discovery, and asking if there was positive evidence of the insect being the ♂ of *O. insignis*. He replied at once, as follows:—

"My specimens of *O. insignis*, ♂, were obtained from plants of *Verbena* grown under glass jars. In selecting the plants, I took care to take those appearing on a close examination to be entirely free of 'mealy bugs,' which do occur in numbers in our greenhouses. The plants, however, were very badly infested with *O. insignis*, and it is possible, though hardly probable, that I might have overlooked some young *Dactylopii* among the moulted skins of the *Orthezia*. I did not obtain males from all the plants kept under observation, and none at all from cuttings of plants (kept under bell-jars in bottles) infested with the progeny of single females.

"At the same time I observed the similarity that my specimens bore to the figure of *Dactylopius destructor*, Comst. (*citri*, Boisd.), in the 1880 Report of the U. S. Dept. of Agriculture, pl. xxii, but as there appeared to be differences, and I could find no trace of tarsal digitules on any of the nine specimens I succeeded in mounting, and, moreover, as they agreed almost precisely with your description, and as Mr. W. H. Ashmead had also described an insect with but two caudal filaments as an *Orthezia* (Canadian Entomologist, xx, p. 202), I did not doubt that I had the true male of *O. insignis*. I did not observe any coition of the sexes, all the specimens being at rest on the sides of the jars when taken."

Mr. Green writes:—

"I have no hesitation in saying that the male I have figured belongs to the

♀ *Orthesia* we have here (I enclose specimens of both sexes). I have bred these males from colonies of the *Orthesia*, and have observed them in all stages, from the time of the larval form, when the two sexes were undistinguishable. The males appeared in countless numbers last year in the Botanical Gardens here, hovering over the bushes infested with the *Orthesia*. Previously only females occurred, so it is probable that the male broods occur only periodically.

"*Dactylopius* is a very common insect in plant-houses, and it seems probable that the males of that *Coccid* may have been on the wing in the neighbourhood of the *Orthesia*, ♀."

The ♀, according to Mr. Green's description and figure, and also the specimens forwarded, being the same as my species, it seems to me to be conclusive that he has found the true ♂, and that the ♂ I described and figured has nothing to do with *O. insignis*. It is very curious, however, that both in England and America a synchronous, yet not cognate, ♂ *Coccid* should have erroneously been placed in the same position, and I am very glad the mistake has been found out.

The synonymy will, therefore, be:—

Orthesia insignis, ♀, Doug., Green, Lounsb.

" " ♂, Green, *nec* Doug., Lounsb.

153, Lewisham Road, S.E.:

April 15th, 1895.

STENOPHYLAX CONCENTRICUS, AUCT. (*nec* ZETT.), RENAMED
S. PERMISTUS.

BY ROBERT McLACHLAN, F.R.S., &c.

The Trichopteron commonly known in collections as *S. concentricus* is an insect of large size, widely distributed, and familiar to most students of *Trichoptera*, but nevertheless belonging to a group of species having much external resemblance one to another, although in some cases pertaining to distinct *genera*. As a consequence very great confusion in nomenclature has resulted.

When writing my "Monographic Revision and Synopsis," I gave (p. 134) a long and complex list of synonyms and bibliography for the insect now under consideration, due almost entirely to the existing confusion, and stated that I adopted the only name (*concentricus*, Zett.) which, according to an examination by the late Pastor Wallengren of Zetterstedt's type, appeared to be free from objection; it was hoped the nomenclature was finally settled. But it would appear that the unfortunate species is still without a name "free from objection."

Dr. C. G. Thomson, the well known entomologist of Lund, in the Museum of which town Zetterstedt's types are deposited, has stated

(Opusc. Entomol., fasc. xv, p. 1596, 1891) that the mutilated type of *Phryganea concentrica*, Zett., is *Arctæcia dualis*, McLach.; such a determination had been previously made by Hagen (*ex descr.*), and the ♂ of *A. dualis* has a certain amount of general resemblance to the *Stenophylax*. This corrected identification appears to have been accepted by Wallengren in his "Skand. Neuroptera," Pt. ii (*Trichoptera*), 1891, according to his supplementary note at p. 167. Thomson, having transferred the specific name *concentrica*, Zett., to the *Arctæcia*, in place of *dualis*, McLach., had to find another name for the *Stenophylax*, and adopted that of "*hieroglyphicus*, Steph." This was merely the perpetuation of an old error. Owing to circumstances which it is not now necessary to detail, Stephens, when writing his "Illustrations," did not consult Curtis' types, and it happens that Curtis' *hieroglyphicus* equals *Halesus digitatus*; this being so, the *Stenophylax* must receive a new name, and I propose that of *PERMISTUS*. As a result, the species known as *Arctæcia dualis*, McLach., becomes *A. concentrica*, Zett., as adopted by Thomson.

Lewisham, London :
October, 1894.

TEN DAYS' COLLECTING IN RHENISH PRUSSIA.

BY ALBERT H. JONES, F.E.S.

Having read my friend Mr. McLachlan's article in this month's Magazine on the Neuropterous Fauna of Rhenish Prussia, I am prompted to write a few words on the *Lepidoptera* observed during our visit.

We remained three days at Gerolstein, our first halting place, but with the exception of one sunny morning the weather was very bad for collecting—earlier in the season, and in fine weather, no doubt the district would be very productive.

About two miles in an easterly direction from the town lies an extensive forest, principally consisting of fir, the ground being carpeted with *Vaccinium*. An excursion to an elevation of about 1900 feet (*i. e.*, 600 feet above Gerolstein) revealed a grand view over hills covered with an uninterrupted forest to the east, and to the west over more open and cultivated country. About three miles off, near the village of Roth, lies the "Ice Cave,"* situated on a volcanic hill covered with beech trees of large dimensions among lichen-covered boulders. This locality had all the appearance of being good collecting ground for *Lepidoptera*.

* So called because a thin layer of ice on the rock never melts all the year round.

We arrived at Trier on July 27th, and had now reached the very centre of the wine-growing country, every acre with a suitable aspect being devoted to vine culture, and had it not been for Mr. McLachlan's memory serving him well, and his recollecting a suitable collecting ground, our visit to Trier would have been an entomological blank.

Bullay, on the Moselle, about midway between Trier and Coblenz, was our next head quarters. The best collecting ground for *Lepidoptera*, as Mr. McLachlan has pointed out as being the best for *Neuroptera*, was on the Alf side of the river. Here the vegetation of the hills blended with that of the river bank, forming a varied flora. At Bullay we separated, meeting again at Brussels.

I returned by way of Coblenz, and one day's collecting there on the hill sides completed a pleasant excursion.

Pieris brassicae, *rapae*, and *napi*, common; *Daphidice*, Trier, Bullay, and Coblenz, one at each place. *Leucophasia sinapis*, one specimen in the village of Bullay. *Colias Hyale*, Bullay. *Thecla spini*, Bullay. *Polyommatus Phlaeas* and *Dorilis*, a few, Bullay. *Lycana Egon*, Gerolstein, *Astrarche*, Coblenz, *Icarus*, *Bellargus*, *Corydon*, *Hylas*, and *Argiolus*, Gerolstein. *Vanessa o-album*, a solitary larva on nettle, Bullay—the butterfly was noticed at all the places we visited; *urticae* and *cardui*, a few. *Argynnis Aglaia*, Gerolstein, *Paphia*, Trier. *Melanargia Galatea*, Gerolstein and Trier. *Erebia athiops*, one specimen, Coblenz, close to the banks of the Rhine. *Satyrus Semele*, a dark form, Gerolstein. *Pararge Megara* and *Ageria*, *Epinephele Janira*, *Tithonus*, *Hyperanthus*, *Cænonympha Arcania* and *Pamphilus*, and *Hesperia lineola*, Gerolstein.

Deilephila euphorbiae, a few full grown larvæ on Spurge. *Sesia ichneumoni-formis*, a few at Gerolstein by sweeping.

Setina irrorella, Gerolstein. *Lithosia complana* and *complanula*, at light, Bullay. *Callimorpha Hera*, Bullay and Coblenz. *Spilosoma fuliginosa*, several at light, Bullay.

Gnophos obscurata and *Aspilates citraria*, Bullay. *Lythria purpuraria*, Gerolstein. *Fidonia atomaria*, *Minoa euphorbiata*, *Strenia clathraria*, *Ephyra porata*, Bullay. *Eupithecia linariata*, Bullay, *lariciata*. *Acidalia perocharia*, two specimens, this species flew in the bright sunshine among wild marjoram, *ornata*, and *aversata*. *Eubolia mensuraria*, *bipunctaria*, and *Odesia chærophyllata*.

Agrotis rorida, at light, Gerolstein. *Calophasia lunula*, Bullay. *Euclidia glyphica*, Gerolstein. *Odontia dentalis*, among *Echium*, Bullay.

Shrublands, Eltham:
May 2nd, 1895.

Monotoma rufa and its allies: synonymical note.—The following note has been communicated by Mons. A. Fauvel of Caen. "Crotch (Entomologist, ii, p. 179), upon the authority of Aubé, whose types I have seen, correctly established the synonymy of *Monotoma quadrifoveolata*, Aubé, and *M. subquadrifoveolata*, Waterh., but this is not followed by the Rev. Canon Fowler (Col. Brit. Islands, iii, p. 274). The synonymy should stand thus:—

- 1.—*rufa*, Redt., 1849.
subquadrifoveolata, Waterh.
quadri-impressa, Reitt.
ferruginea, Bris.
quadrifoveolata, Fowl.
- 2.—*quadrifoveolata*, Aubé, Crotch.
subquadrifoveolata, Fowl.
- 3.—*quadri-impressa*, Motsch.*
Diecki, Reitt."

—G. C. CHAMPION, Horsell: April 22nd, 1895.

Elater pomorum in Sherwood Forest.—I have recently taken *E. pomorum* in old birch in Sherwood Forest; the species has also been taken in Sherwood Forest and on Cannock Chase by Mr. W. G. Blatch, and in numbers in the Dean Forest by Mr. Hodgson: it has occurred very rarely in Scotland, and one specimen has been found in Armagh in birch. Mr. Blatch appears to have found it in oak; it has never, apparently, been found in the New Forest.—W. W. FOWLER, Lincoln: May 17th, 1895.

Deleaster dichrous near Chingford.—This insect is usually scarce in the London district, but I was fortunate enough to meet with nine by digging in the banks of the Ching brook, near Higham's Park, on May 10th. *Deleaster* occurred generally in couples, probably sexes; *Tachyusa flavitarsis* and *Trechus micros* (1) were taken at the same time.—E. A. NEWBERRY, 12, Churchill Road, Dartmouth Park, N.W.: May 12th, 1895.

Longicornia and other *Coleoptera* in 1894.—The following were taken by me last year. *Leitopus nebulosus* in Richmond Park in May; in the New Forest, in June, *Rhagium bifasciatum*, *Anoplodera sexguttata*, *Grammoptera tabacicolor*, *G. analis*, and *Elater sanguinolentus*; at Wicken Fen, in August, a single specimen of *Oberea oculata*, *Anthocomus rufus* being rather abundant; *Tetrops præusta* in Headley Lane in September.—W. J. ASHDOWN, Belmont Road, Leatherhead: April, 1895.

Lepidoptera, &c., on the Bournemouth Golf-links.—The reference on p. 60 of the current volume of this Magazine to the loss to science of a good entomological locality at Bournemouth, through the formation of the golf-links, has led to the following notes on some insects taken there by myself in recent years. One characteristic of the Common in question, which is close to the centre of the town, was the extreme abundance of specimens—*Satyrus Semele*, *Lycæna Ægon*, *Phytometra viridaria* (*ænea*), and many other species being in great profusion. Among the *Lepidoptera* taken were *Lithosia mesomella* on the pines; *Emydia cribrum*, two specimens on a part of the ground now marked out for building plots; *Nemeophila russula*, *Agrotis strigula* (*porphyrea*), *Anarta myrtilli*, *Heliothis dipsacea*, *Gnophos obscuraria*, *Nemoria viridata*, *Bupalus piniaria*, *Pachynemania hippocastanaria*, *Eupithecia pumilata*, *Melanthia albicollata*, *Melanippe galiata*, *Pelurga comitata*,

* Not British.—G. C. C.

and numerous others, some having no doubt strayed from the adjoining woods. Also *Lobophora viretata* at a neighbouring gas lamp. Sugar tried one night attracted only *Dipterygia scabriuscula* (*pinastri*) and *Hypenodes costastrigalis*.

The *Nemoria viridata* vary from dull green to pale yellowish-brown, the range of variation being almost identical with that of *Pseudoterpna pruinata* (*cytisaria*) from the same locality, extreme forms of both species occurring there in June, 1893, a very dry season, the inference being that the pale forms are caused more by exposure to sunlight than by moisture.

A few *Micros* were obtained, including *Amblyptilia acanthodactyla*, *Crambus pinellus*, *Phycis fusca*, *Pempelia palumbella*, *Aphomia sociella*, *Harpiteryx xylostella*, and *Ergatis ericinella*.

Other Orders were equally abundant, the only notable captures being a ♀ of *Æschna juncea*, L., on August 14th, 1892, rather far south for it; a damaged specimen of the rare weevil, *Cleonus nebulosus*, found after one of the periodical fires which devastated the upper and drier parts of the Common; and a ♂ of *Mutilla europæa*. There are many similar Commons in the neighbourhood extending almost to the New Forest, and, in spite of golf, Bournemouth remains an excellent centre for entomological work.—ID.: *April 5th*, 1895.

Pieris Daplidice in *Staffordshire*.—I have recently acquired the remnants of a collection of insects made by Mr. S. Bradbury, of Abbots Bromley, and in it I discovered, bodiless and skewered with an ordinary pin, a specimen of *Pieris Daplidice* labelled "*sinapis*." I have no doubt that it was taken at Abbots Bromley; he never went from home, and the specimen is certainly British; indeed the collector does not exist who would send out insects set like this one was, and if it had been sent him, it would certainly have had the correct name. I do not think that any other record of this species in Staffordshire exists.—RICHARD FREEB, Rugeley, Staffordshire: *April 25th*, 1895.

A migration of Pyrameis cardui in California.—Mr. G. D. Franham, of Riverside, California, gives an account (*Ent. News*, vi, p. 150) of a swarm of this insect in that State. In a lane about 80 rods long, a flight was observed at 9 a.m., and from then to noon it was estimated that 200 butterflies passed each minute. At 2 p.m. about 50 passed in the same time; but at 4 p.m. only an occasional one was to be seen. The direction was from south to north; exact date not given, but presumably in April of this year.—EDS.

Pyrameis Callirhoë: correction of an error.—May I correct a *lapsus calami* in my article on the Butterflies of Tenerife (Pt. II) which appeared in the April No. of this Magazine? I misquoted Lang, and said, in referring to *P. Callirhoë*:—"it was imported into the Canary Islands from South Portugal and Andalusia." Lang says (*Rhop. Europ.*, p. 178):—"Habitat, China and Northern India, the Canaries, chiefly the Isle of Teneriffe, whence it has been imported, and has become acclimatized, in the South of France and Andalusia." Millière says:—"a été prise sur les côtes méridionales du Portugal où l'espèce, originaire de l'île de Teneriffe, doit s'être acclimatée."—SIDNEY CROMPTON, Santa Cruz, Tenerife: *April 21st*, 1895.

Ephemeridæ in brackish-water streamlets.—About a mile south-westwards of Hammam-es-Salahin, Biskra, near a low crater-like hill of volcanic rock, and two little reed-fringed pools (a place for dragons), two or three trickling streamlets cut deep gullies through sandy clay. The water is salt enough to leave a taste behind for an hour after rinsing the mouth, and is inhabited by minute seashore Mollusca of the genus *Hydrobia*. It is, therefore, rather surprising to find nymphs of *Ephemeridæ* quite at home with these water-snails. The species most in evidence is *Cloëon dipterum*, L.; its nymphs are plentiful. But from the presence of a female imago of *Cænis halterata*, F., floating on the surface of one of the streamlets, as if drowned while ovipositing, there is reason to suspect that nymphs of this species also might be discovered on the clay at the bottom, if carefully looked after.—A. R. EATON, Biskra, Algeria: April, 1895.

Further Notes from Biskra, Algeria.—Very little rain having fallen this winter near Biskra, herbage is greatly dwarfed in the Ziban in comparison with the growth of last year. Simultaneously several of the *Lepidoptera* that were in abundance last spring, viz., *Pyrameis cardui*, *Plusia gamma* and *Plutella crucifera-rum*, have appeared this season in scanty numbers. *P. cardui*, however, was fairly common for a few weeks from the end of January. *Stenopteryx hybridalis* and one of the *Noctuæ* are also much fewer than they were a year ago, and are more restricted in their topographical range; the former was common in February (when a brood issued) and March, in places.

An additional food-plant for *Papilio Machaon* may be noted. Larvæ occur sparingly on umbels of *Ferula vesceritensis*, Cosson and Durieu, a plant akin to *Peucedanum*, employed for blistering by the Arabs.

There is no scarcity of such *Lepidoptera* as feed on perennial plants in the Ziban. Larvæ of *Deilephila euphorbiæ* are as abundant now as ever, and so are those of the Fritillary on the *Linariæ* and *Autirrhinum*. The number of swallow-tails on the wing has also undergone no diminution this season, and larvæ abound.—ID.

Aërophilus Bonnairii with an abnormal antenna.—Mr. J. H. Keys, of Plymouth, has had the kindness to send me three living specimens of this insect which he had just captured. One of them is remarkable for having an aberrant number of joints in the right antenna, there being but three instead of four, as in the other one. The 2nd joint is slightly lengthened and thickened, the third (now the terminal) is shortened, thickened and abruptly ended. On former occasions, when noting similar deformations in the *Lygæidæ*, in which Family almost only they have been noticed (vols. ii, 270, iii, 200, xiii, 180), I have ventured to think they have been caused by the casual amputation of the last normal joint just before the final moult of the integument, and that the effort to restore the antenna has resulted in the elongation of the 2nd and thickening of the 3rd joint, but never in the restoration of an entire 4th joint.—J. W. DOUGLAS, 153, Lewisham Road, S.E.: May 12th, 1895.

Echinomyia ursina, Mg., again common.—It may be worth while recording the occurrence of this usually rare insect for the second year in succession in considerable numbers at Wyre Forest during Easter. Although common, it was not in such

swarms as in the previous season. As 47 out of 50 specimens taken by myself last year in the same locality were males, I was on the look out for females, but all the captures proved to be males, so that one is inclined to think that either the females come out later, or the males largely outnumber their partners.—RALPH C. BRADLEY, Sutton Coldfield : May, 1895.

Abundance of Bombylius major.—On April 12th I visited Epping Forest for *Diptera*, and found *B. major* abundant, hovering over the shallows in the hot sunshine, or sunning itself with outstretched wings on the hedge banks. I hear that it has been swarming all over the Forest. On the 16th I worked Box Hill and Mickleham Downs, and found it as abundant as in the Forest, but on quite different plants, namely, *Viola sylvatica* and *Nepeta glechoma*, the latter, with its strongly scented blossoms, attracting many more insects than the almost odourless *Viola*. I noticed the *Bombylii* continued at these plants right up till sunset, and I believe there were more feeding at 4 o'clock in the afternoon than at mid-day, and they were certainly much less shy. The sexes were about equally distributed.—F. B. JENNINGS, Meadow Cottage, Tanner's End, Edmonton, N. : April 18th, 1895.

Reviews.

DIE KÄFER VON MITTELEUROPA. Bearbeitet von LUDWIG GANGLBAUER. Zweiter Band. Familienreihe Staphylinidea. I Theil Staphylinidæ, Pselaphidæ. Vienna: Carl Gerold's Sohn. 1895. VI and 880 pp. 38 cuts.

This volume is interesting in two aspects: 1, as being not a mere compilation, but the result of original work; and 2, as an attempt to produce a work that will enable the collector to determine his species in one of the most extensive and difficult of the Families of *Coleoptera* by the aid of tables and descriptions.

Herr Ganglbauer has worked at the classification of the *Staphylinidæ*, and devotes some pages to the examination of the systems previously proposed by others. He finds himself compelled to reject the method of C. G. Thomson, and to simplify Erichson's system by uniting into one the five tribes by which that systematist terminated his arrangement of the Family; while, on the other hand, *Oxyporus* and *Evasthetus* and some others have subfamily rank assigned to them. These are pretty nearly the results that were arrived at in the last work, the *Biologia Centrali Americana*, in which the Family *Staphylinidæ* was dealt with as a whole. Ganglbauer suggests that a further reduction in the number of subfamilies may be effected by uniting the *Aleocharinæ*, *Trichophyina*, *Habrocerina* and *Tachyporina*, thus reducing the number of subfamilies found in Europe to nine; the *Micropeplina* being included as one of these. The number of subfamilies for the whole world would then be eleven, there being two subfamilies that have no representatives in Europe.

The *Staphylinidæ* are undoubtedly the most trying of all the European beetles to the collector; they are much more difficult to mount satisfactorily than other beetles are, and the determination of their species requires a trained eye and careful use thereof. Granted these, Herr Ganglbauer's book will be found the most useful that has yet been published for the purpose of species determination. The tables

have been carefully prepared, and are supplemented by paragraphs in which condensed statements as to the characters of each species are given. These extend to considerable length, but this at present is inevitable. Collections of *Staphylinida* are usually very imperfect, those in the public Museums being almost without exception miserable, a disgrace to the Institutions. As long as this continues to be the case it will be necessary that hand-books should attempt to atone for it by descriptions. But when collections become more complete and accessible, and are better prepared, it will be possible to reduce the extent of this part of entomological literature very greatly. We mention this because one constantly meets with reproaches against systematic entomologists because their literature is so fearfully long and dry. That is really the fault of the Museums, for when good collections exist we may feel sure that the literature of species descriptions will become very much less extensive, it being far more satisfactory to name species with certainty by means of a good collection, aided by brief notes as to the nature of the more important specific characters. It will always be necessary to give descriptions of new species, but we repeat that the constant repetition of descriptions of old species is a necessary result of the deficiencies of accessible collections.

We can recommend Herr Ganglbauer's book as being on the whole the best available to the European collector of *Staphylinida* and *Pselaphida* for aid in the determination of his species.—D. SHARP.

EIGHTEENTH REPORT OF THE STATE ENTOMOLOGIST ON THE NOXIOUS AND BENEFICIAL INSECTS OF THE STATE OF ILLINOIS. Seventh Report of S. A. FORBES, for the years 1891 and 1892. Springfield, Ill. 1894. 8vo, 117 pp., and 15 plates.

This Report fully sustains Dr. Forbes' reputation as one of the most astute Economic Entomologists. The author has been engaged on a Monograph of the insects injurious to Indian Corn, and this forms Part i of the whole, and relates solely to species attacking the seed in the earth and the root of the plant. The known insect ills that Indian Corn is heir to, are stated as 214 species, and of these 18 attack the seed, and 27 the plant below ground, so that only a small portion of the whole are treated on in this bulky first instalment. It must not, however, be inferred that all, or even a considerable part, are peculiar to Indian Corn; nor that all are really destructive in an important degree: some are only considered "menacers." We have no space to go into details, but mention as of special importance no less than five species of subterranean *Aphides*. The plates are excellent.

A MANUAL FOR THE STUDY OF INSECTS: by JOHN HENRY COMSTOCK and ANNA BATSFORD COMSTOCK. 8vo, pp. 701, with numerous illustrations. Ithaca, N. Y., Comstock Publishing Company. 1895.

In the United States a "Guide" to the study of Insects has long existed in many editions: we now have a "Manual." Both of course cover the same ground, but the plan of treatment is very different, therefore the two works do not clash. The system followed is strictly phylogenetic, the *Insecta* beginning with the *Thysanura* and ending with the *Hymenoptera*. Nineteen Orders are recognised, resulting from the comparatively new practice of splitting up the old *Neuroptera* and *Orthoptera*. Two distinctive features are claimed, viz., a tabulation of all the Families known to

occur in North America, and an attempt to homologize wing neurulation, but this latter is only partially carried out, and is wanting in the old *Neuroptera*, &c., where it seems to us to be most needed. As another feature may be mentioned the attempt to indicate the correct pronunciation of all the scientific names quoted: we fear this will not be of great service, inasmuch as it gives no clue to the laws that govern "quantities," and helps the student little further than with the names in the book, which are naturally only a tithe of those existing. The crowded illustrations are nearly all original (which in itself is almost a new feature in American works on general Entomology), and by the careful hand of the "junior editor" (Mrs. Comstock). The majority of these are excellent; there is a blackness about them that in a few cases (notably in the sculpture of the elytra of the *Coleoptera*) obscures the subject, whereas in others it brings out the details in a wonderfully clear manner. It is impossible in the space at our disposal to analyze the work in a general way. It is unequal—most works of this nature are so—and especially in the treatment of the old Order *Neuroptera*, which does not receive sufficient detail, such an important Family or Order for instance as the *Odonata* being dismissed in three pages (including illustrations) with not a word about the unique (in insects) condition of the genital organs of the male. The *Lepidoptera*, *Coleoptera*, *Diptera* and *Hymenoptera* are worked out at great length. The *Lepidoptera* are divided into two sub-Orders, *Jugata* and *Frenata*, according as to whether the two pairs of wings are united by a "jugum" or a "frenulum," the former including only the *Hepialida* and *Micropterygida*,* and the latter all the other Families, and if in some of these other Families the frenulum does not exist, we are asked to believe that in the course of Natural Selection it has been lost. The *Coleoptera* are also divided into two sub-Orders, viz., "typical *Coleoptera*" and *Rhynchophora*. The specially weak point of the book appears to us to consist in an almost general absence of reference to the works or opinions of other authors, and, as a result, a too dogmatic belief by the senior author in his own views, but this possibly results from a thoroughgoing acceptance of Natural Selection as the one factor in Evolution. Prof. Comstock is to be congratulated on having produced a work on general entomology that must take a foremost place amongst the scientific literature of the subject, though we do not expect advanced students will be able to accept all his conclusions. We ask, why do American authors employ heavily "loaded" paper for their works, and what will be the condition of those works a hundred years hence in consequence?—R. McL.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *March 18th, 1895.*—Mr. P. W. ABBOTT, Vice-President, in the Chair.

Mr. C. J. Wainwright showed two specimens of *Zygana* from the New Forest, which he could not satisfactorily determine. Mr. Abbott believed them to be *trifolii*. Mr. R. C. Bradley showed a spider from Sutton, which was much like *Formica rufa* in general appearance. Mr. P. W. Abbott showed a nice series of *Hesperia Actæon* from Lulworth. Mr. R. C. Bradley showed a box from his collection, containing amongst others the *Psychida*; and he gave a short description

* This reminds us that in the "Insecta Britannica, Tineina," the wings of *Micropteryx* are erroneously figured as possessing a distinct "frenulum." cf. Pl. II, fig. 4.

of the species, and remarked that they offered a good field for further work; one *Solenobia* he possessed Mr. Barrett believed to be new, and wished to see more specimens, it was taken in Wyre Forest.

April 22nd, 1895.—Mr. G. T. BETHUNE-BAKER, President, in the Chair.

The following were exhibited :—By Mr. R. C. Bradley, three species of *Crabro varius* and *anxius* from Wyre Forest, and specimen of *pubescens* from Sutton; he said that only four other specimens of *pubescens* are known to Mr. Saunders from Britain. Mr. A. H. Martineau, *Andrena angustior* (2) from Solihull, a rare species. Mr. Wainwright, other *Hymenoptera*. Mr. C. Runge, eggs of *Asphalia flavicornis* as found, being laid singly in the forks of birch twigs. Mr. Martineau read a paper on a collection made indoors in his house at Solihull; he started the collection in consequence of a questioned statement that 100 species of insects might be found in a house in one year; he had taken 136 during the past year, and believed that if he could have been at home more in the day time he might have made it 200. The most unexpected species were *Acidalia virgularia* and *Tinea semifulvella* (1 each), neither having been taken locally before. He noticed that *Culex annulatus* and *pipiens*, which were common in the cellars, only settled on the brickwork, never on plastered laths which formed part of the ceiling.

—COLBRAN J. WAINWRIGHT, *Hon. Sec.*

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY:
April 11th, 1895.—C. G. BARRETT, Esq., F.E.S., Vice-President, in the Chair.

Mr. Winkley, on behalf of Mr. Montgomery, of Ealing, exhibited and read notes on a bred series of *Nysia hispidaria*, Hb.; one specimen was whitish, without the central band, and having only the transverse lines and apical streak dark grey; another example was uniformly smoky-black. Mr. Edwards, male and female *Dynaster Napoleon*, and a specimen of *Caligo martia* from Brazil. A discussion took place as to the season, and the general opinion was that the present spring was some three weeks later than last year.

April 25th, 1895.—T. W. HALL, Esq., F.E.S., President, in the Chair.

Mr. Ashdown, of Leatherhead, was elected a Member.

Mr. Frohawk exhibited a var. of *Papilio Machaon*, L., having ochreous-yellow blotches at the anal angle, and the blue markings almost white; it was bred from a Wicken larva. Mr. Mansbridge, three melanic specimens of *Phigalia pедaria*, Fb., taken by him this year near Barnsley, and remarked on the gradual extension of this variation; Mr. Adkin said that Mr. South had taken one example at Macclesfield. Mr. Moore, a specimen of *Pterostichus madidus*, F., which had been attacked by a *Gordius*. Mr. Turner exhibited a specimen of *Plusia moneta*, Fab., which was taken at West Wickham in July, 1894, by Mr. Slade, of Gellatly Road, Hatcham; also a series of *Spilosoma menthastri*, Esp., two specimens having only a few small dots on the fore-wings, three Scotch forms with a darker ground and having the second line more or less complete, especially in one specimen.

May 9th, 1895.—The President in the Chair.

Mr. Williams exhibited a curious cluster of cocoons fastened on a twig in a

caterpillar-like group. Mr. T. W. Hall, a var. of *Sphinx ocellatus*, L., having a considerable obscuration of the ocelli. Mr. Enock, specimens of the exceedingly rare *Polynema natans*, Lub., one of the *Mymarida*, which inhabits water, and lays its eggs in those of the dragon-fly. In describing it, he said that it used its wings for swimming, and although observed first in 1862 by Sir John Lubbock, had only once been seen since; he himself had until the present week vainly looked for it. Mr. Mansbridge then read an interesting paper on "Prairie Insects," giving an account of the insect inhabitants of prairies in the Indian territory, other than *Lepidoptera*. In the discussion which ensued, Messrs. Pearce, Carrington, and Warne gave their experiences in similar regions.—HY. J. TURNER, *Hon. Sec.*

ENTOMOLOGICAL SOCIETY OF LONDON: *May 1st*, 1895.—Professor RAPHAEL MELDOLA, F.R.S., President, in the Chair.

Mr. Oswald H. Latter, M.A., of the Charterhouse, Godalming, was elected a Fellow; and Dr. C. G. Thomson, of the University, Lund, Sweden, was elected an Honorary Fellow, to fill the vacancy caused by the death of Pastor Wallengren.

Mr. Horace St. J. Donisthorpe exhibited a variety of *Rhagium bifasciatum*, taken in the New Forest, in which the elytra were of a light testaceous colour. Mr. Waterhouse exhibited a living larva of a Longicorn Beetle found in a boot-tree which had been in constant use by the owner for fourteen years, the last seven of which had been spent in India. The specimen was brought to the British Museum on May 6th, 1890, and was put into a block of beech wood in which it had lived ever since; it did not appear to have altered in any way during these five years. It had burrowed about eight inches, and probably made its exit accidentally. Mr. Blandford referred to a similar case which had come under his notice. Mr. C. G. Barrett exhibited a long series of the dark and strongly-marked varieties of *Agrotis cursoria* and *Agrotis tritici*, taken on the sandhills of the North-East coast of Scotland by Mr. Arthur Horne, of Aberdeen. Mr. Dale exhibited a specimen of a *Sesia*—supposed to be a new species—from the New Forest. Mr. O. E. Janson exhibited a remarkable species of *Curculionidæ* from the island of Gilolo, having exceedingly long and slender rostrum, antennæ and legs, it was apparently an undescribed species of the genus *Talanthia*, Pascoe. Mr. Nelson Richardson called attention to a paper by himself, in the Proceedings of the Dorset Natural History and Antiquarian Field Club, on the subject of Dorset *Lepidoptera* in 1892 and 1893. Mr. W. L. Distant communicated a paper, entitled, "On a probable explanation of an unverified observation relative to the family *Fulgoridæ*." In this paper the author cited the expressed opinions of certain naturalists as to the luminous properties of some species of this family. In the discussion which ensued Mr. Blandford said he thought further evidence was required on the subject of the alleged luminosity in the *Fulgoridæ* before the statements contained in Mr. Distant's paper could be accepted. Mr. J. J. Walker, R.N., contributed a paper, entitled, "A Preliminary List of the Butterflies of Hong-Kong, based on Observations and Captures made during the winter and spring months of 1892 and 1893." Professor Meldola commented on the interesting character of the paper from an Entomological point of view, and the value of the observations therein on the Geology, Botany, and Climate of Hong-Kong.—H. GOSS, *Hon. Sec.*

LIST OF THE *COLEOPTERA* COMMON TO BRITAIN & NORTH AMERICA.

BY G. C. CHAMPION, F.Z.S.

In the Transactions of the American Entomological Society, xxi, pp. 345-416 (October, 1894), Dr. John Hamilton gives a carefully revised "Catalogue of the *Coleoptera* common to North America, Northern Asia and Europe, with distribution and bibliography." The total number of species enumerated is 594, of which 216 appear to have been introduced into North America. The remainder are common to North America and Europe, and with the exception of 50 (which almost certainly occur there) to Northern Asia also. As no fewer than 384 of the species enumerated are found in Britain, I think a list of these cannot fail to be of interest to British Coleopterists. The species (78) marked * are more or less cosmopolitan; those (111) marked † are, according to Dr. Hamilton, probably introduced in North America; those (23) marked ‡ have not yet been recorded from North Asia; and those (172) without special mark are apparently endemic in Britain, the continent of Europe, and North America. An analysis of the list appended below shows that nearly all the *Clavicornia* are cosmopolitan, and the *Heteromera* also, the *Melandryidæ* (2) and *Pythidæ* (1) excepted. All the *Curculionidæ* but ten appear to have been introduced into North America. The endemic species common to Britain and North America belong to the *Staphylinidæ* (63), *Dytiscidæ* (22), *Carabidæ* (17), *Chrysomelidæ* (12), *Curculionidæ* (11), *Hydrophilidæ* (11), *Coccinellidæ* (7), *Silphidæ* (4), *Elate-ridæ* (4), *Histeridæ* (3), *Scolytidæ* (3), *Gyrinidæ* (3).

In the following list, which includes 384 species, I have adopted the nomenclature of Sharp and Fowler's "Catalogue," in preference to that of Dr. Hamilton, as it will be more easily understood by British students. *Lymerixylon navale*, L., and *Latheticus oryzae*, C.O. Waterh., do not appear to have yet reached North America; it is possible, however, that *L. sericeum*, Harris, may not be distinct from *L. navale*, L. Dr. Hamilton's Catalogue tends to show that there is no true line of demarcation between the Nearctic and Palæarctic regions, many northern species being common to both continents. To further emphasize this it may be noted that very many genera are common to Europe and North America, in which the North American representatives are extremely closely allied to the European.

† *Carabus granulatus*, L.† „ *nemoralis*, Müll.

Elaphrus riparius, L.

Elaphrus lapponicus, Gyll.

Blethisa multipunctata, L.

Notiophilus aquaticus, L.

- Loricera pilicornis*, F.
Dyschirius æneus, Dej.
† *Clivina fossor*, L.
Bembidium littorale, Oliv.
" *paludosum*, Panz.
" *lampros*, Herbat.
" *flammulatum*, Clairv.
" *assimile*, Gyll.
" *4-maculatum*, L.
Patrobis septentrionis, Dej.
† *Trechus rubens*, F.
Pterostichus vitreus, Dej.
Amara apricaria, Payk.
† *Licinus silphoides*, F.
Badister bipustulatus, F.
† *Pristonychus terricola*, Herbat.
Miscodera arctica, Payk.
Haliplus ruficollis, Deg.
Colambus inæqualis, F.
Deronectes griseostriatus, Deg.
Hydroporus septentrionalis, Gyll.
" *rivalis*, Gyll.
" *longicornis*, Sharp.
" *obscurus*, Sturm.
" *melanocephalus*, Gyll.
" *tristis*, Payk.
" *oblongus*, Steph.
" *palustris*, L.
Ilybius ater, Deg.
" *subæneus*, Er.
" *fuliginosus*, F.
Agabus congener, Payk.
" *arcticus*, Payk.
Rhantus notatus, F.
" *bistriatus*, Berg.
Dytiscus marginalis, L.
" *circumcinctus*, Ahr.
" *lapponicus*, Gyll.
Graphoderes cinereus, L.
Gyrinus minutus, F.
" *marinus*, Gyll.
" *opacus*, Sahlb.
Helophorus tuberculatus, Gyll.
Hydrobius fuscipes, L.
† *Sphæridium scarabæoides*, L.
Cercyon littoralis, Gyll.
‡ " *depressus*, Steph.
- † *Cercyon unipunctatus*, L.
" *quisquilius*, L.
" *aquaticus*, Muls.
" *lateralis*, Marsh.
" *analis*, Payk.
† " *flavipes*, F.
† " *melanocephalus*, L.
† " *pygmaeus*, Ill.
† " *nigriceps*, Marsh.
" *lugubris*, Payk.
" *minutus*, Muls.
† " *granarius*, Er.
Cryptopleurum atomarium, F.
* *Aleochara lata*, Grav.
" *fuscipes*, F.
" *mœrens*, Gyll.
" *morian*, Grav.
" *nitida*, Grav.
‡ *Microglossa suturalis*, Sahlb.
† *Homalota angustula*, Gyll.
" *analis*, Grav.
† " *cavifrons*, Sharp.
* " *sordida*, Marsh.
" *parva*, Sahlb.
* " *fungi*, Grav.
* " *coriaria*, Kr.
† " *divisa*, Märk.
" *palustris*, Kies.
‡ " *aquatica*, Th.
† " *pavens*, Er.
" *graminicola*, Grav.
Epipeda plana, Gyll.
† *Leptusa fumida*, Er.
† *Placusa complanata*, Er.
† " *infima*, Er.
† *Oligota parva*, Kr.
* " *pusillima*, Grav.
† *Gyrophæna affinis*, Sahlb.
† " *strictula*, Er.
Gymnusa brevicollis, Payk.
† " *variegata*, Kies.
Myllæna dubia, Grav.
" *minuta*, Grav.
† " *infusata*, Kr.
† *Hypocyptus longicornis*, Payk.
† " *læviusculus*, Mann.
‡ *Tachinus pallipes*, Grav.
" *elongatus*, Gyll.

- Tachyporus chrysomelinus*, L.
 „ *brunneus*, F.
 **Cilea silphoides*, L.
Conosoma littoreum, L.
 „ *pubescens*, Payk.
Megacronus cingulatus, Mann.
Bolitobius pygmæus, F.
 ‡ „ *exoletus*, Er.
Mycetoporus splendidus, Grav.
 † „ *punctus*, Gyll.
 „ *lepidus*, Grav.
 †*Acylophorus glabricollis*, Boisd.
 **Quedius fulgidus*, F.
 „ *mesomelinus*, Marsh.
 „ *molochinus*, Grav.
 „ *fulvicollis*, Steph.
Quedionuchus lævigatus, Gyll.
 **Creophilus maxillosus*, L.
 †*Staphylinus erythropterus*, L.
 † „ *cesareus*, Cederh.
 †*Ocypus ater*, Grav.
 **Philonthus æneus*, Rossi.
 „ *umbratilis*, Grav.¹
 † „ *politus*, F.
 „ *debilis*, Grav.
 * „ *varians*, Payk.
 * „ *longicornis*, Steph.
 * „ *discoideus*, Grav.
 * „ *thermarum*, Aubé.
 * „ *quisquiliarius*, Gyll.
 „ *fulvipes*, F.
 „ *micans*, Grav.
 * „ *sordidus*, Grav.
 „ *cephalotes*, Grav.
 * „ *ventralis*, Grav.
 * „ *nigritulus*, Grav.
Actobius cinerascens, Grav.
 * „ *procerulus*, Grav.
 †*Cafius sericeus*, Holme.
 †*Xantholinus fulgidus*, F.
 „ *punctulatus*, Payk.
 **Leptacinus batychrus*, Gyll.
 * „ *parumpunctatus*, Gyll.
 †*Dianous cœrulescens*, Gyll.
Stenus bipunctatus, Er.
 „ *juno*, F.
Stenus declaratus, Er. (*nanus*, Steph.).
 „ *canaliculatus*, Gyll.
 „ *morio*, Grav.
 „ *tarsalis*, Ljungh.
 „ *argus*, Grav.
 **Medon ochraceus*, Grav.
 * „ *obsoletus*, Nordm.
Lathrobium quadratum, Payk.
 „ *terminatum*, Grav.
Bledius opacus, Block.
 **Oxytelus sculptus*, Grav.
 * „ *rugosus*, F.
 „ *laqueatus*, Marsh.
 „ *nitidulus*, Grav.
 † „ *tetracaratus*, Block.
 **Trogophloeus riparius*, Lac.
 „ *corticinus*, Grav.
 † „ *fuliginosus*, Grav.
 „ *pusillus*, Grav.
 „ *tenellus*, Er.
 †*Coprophilus striatulus*, F.
Geodromicus nigrita, Müll.
Acidota crenata, F.
Arpedium brachypterum, Grav.
Lathrimæum atrocephalum, Gyll.
Olophrum fuscum, Grav.
Homalium cæsum, Grav.
 „ *pusillum*, Grav.
 „ *florale*, Payk.
 † „ *rivulare*, Payk.
Protinus brachypterus, F.
 ‡ „ *atomarius*, Er.
Megarthus sinuato-collis, Lac.
 †*Pseudopsis sulcata*, Newm.
 †? *Bryaxis sanguinea*, L.
 †*Leptinus testaceus*, Müll.
Necrophorus mortuorum, F.
Silpha opaca, L.
 †*Sphærites glabratus*, F.
Hister merdarius, Hoffm.
 „ *bimaculatus*, L.
 **Carcinops 14-striata*, Steph.
Gnathoneus rotundatus, Kug.
 †*Ptenidium evanescens*, Marsh.
 ‡ „ *atomaroides*, Motsch.

¹ Omitted in Sharp and Fowler's Catalogue.

- †*Trichopteryx ambiguus*, Matth.
 " *sericans*, Heer.
 † " *fascicularis*, Herbst.
 " *atomaria*, Deg.
 †*Actinopteryx fucicola*, All.
 †*Smicrus filicornis*, Fairm.
 Hippodamia variegata, Goeze.
 " *13-punctata*, L.
 Coccinella 11-punctata, L.
 Adalia bipunctata, L.
 Anatis ocellata, L.
 Halyzia 14-guttata, L.
 Soyumnus arcuatus, Rossi.
 †*Mycetæa hirta*, Marsh.
 ? *Olibrus bicolor*, Gyll.
 Micropeplus tesserula, Curt.
 †*Brachypterus urticæ*, F.
 †*Cercus bipustulatus*, Payk.
 **Carpophilus hemipterus*, L.
 * " *mutilatus*, Er.
 Epuræa æstiva, L.
 " *immunda*, Er.
 †*Nitidula bipustulata*, L.
 † " *rufipes*, L.
 †*Omosita colon*, L.
 † " *discoidea*, F.
 Meligethes æneus, F.
 Cryptarcha strigata, F.
 †*Ips 4-guttata*, F.
 **Tenebrioides mauritanicus*, L.
 †*Aglenus brunneus*, Gyll.
 **Murmidius ovalis*, Beck.
 **Silvanus surinamensis*, L.
 * " *bidentatus*, F.
 **Cathartus advena*, Waltl.
 **Nausibius dentatus*, Marsh.
 **Pediacus depressus*, Herbst.
 **Læmophlæus pusillus*, Schönh.
 * " *ferrugineus*, Steph.
 Dendrophagus crenatus, Payk.
 **Monotoma picipes*, Herbst.
 † " *longicollis*, Gyll.
 **Holoparamceus singularis*, Beck.
 **Eniomus minutus*, L.
 Coninomus carinatus, Gyll.
 * " *nodifer*, Westw.
- †*Cartodere filiformis*, Th.
 † " *ruficollis*, Marsh.
 **Corticaria pubescens*, Gyll.
 * " *fulva*, Com.
 " *denticulata*, Kirby.
 * " *serrata*, Payk.
 * " *elongata*, Humm.
 **Melanophthalma similata*, Gyll.
 Henoticus serratus, Gyll.
 †*Cryptophagus cellaris*, Scop.
 † " *saginat*, Sturm.
 † " *acutangulus*, Gyll.
 †*Cænoscelis ferruginea*, Sahlb.
 †*Atomaria umbrina*, Er.
 " *apicalis*, Er.
 **Typhæa fumata*, L.
 **Dermestes lardarius*, L.
 * " *vulpinus*, F.
 † " *Frischi*, Kug.
 **Attagenus pello*, L.
 †*Anthrenus scrophulariæ*, L.
 * " *musæorum*, L.
 † " *claviger*, Er.
 Cytilus varius, F.
 Byrrhus murinus, F.
 " *fasciatus*, F.
 †*Onthophagus nuchicornis*, L.
 Aphodius fossor, L.
 † " *erraticus*, L.
 † " *finetarius*, L.
 † " *fœtidus*, F.
 * " *granarius*, L.
 * " *lividus*, Oliv.
 † " *inquinatus*, F.
 " *rufipes*, L.
 † " *depressus*, Kug.
 † " *prodromus*, Brahm.
 †*Oxyomus porcatus*, F.
 †*Psammobius cæsus*, Panz.
 Trox scaber, L.
 †*Agrilus sinuatus*, Oliv.
 Elater nigrinus, Payk.
 Athous undulatus, Deg.
 Corymbites tessellatus, F.
 " *metallicus*, Payk.
 Cyphon variabilis, Thunb.

- Cyphon padi, L.
 ? „ coarctatus, Payk.
 Eros aurora, Herbst.
 †Malachius æneus, L.
 *Tarsostenus univittatus, Rossi.
 *Neorobia rufipes, Deg.
 * „ ruficollis, F.
 * „ violacea, L.
 *Gibbium scotias, F.
 *Ptinus fur, L.
 †Ernobius mollis, L.
 †Xestobium tessellatum, De G.
 *Anobium paniceum, L.
 *Lasioderma serricorne, F.
 †Dinoderus substriatus, Payk.
 *Rhizopertha pusilla, F.
 †Hylotrupes bajulus, L.
 †Callidium variabile, L.
 †Gracilia minuta, F.
 Rhagium inquisitor, L.
 *Bruchus pisi, L.
 †Crioceris asparagi, L.
 † „ 12-punctata, L.
 Prasocuris phellandrii, L.
 Phædon armoracæ, L.
 Gastroidea polygoni, L.
 „ viridula, De G.
 †Melasoma tremulæ, F.
 Phytodecta pallida, L.
 „ viminalis, L.
 Phyllodecta vulgatissima, L.
 „ vitellinæ, L.
 †Agelastica halensis, L.
 Galerucella nymphææ, L.
 †Crepidodera rufipes, L.
 „ helxines, L.
 „ Modeeri, L.
 †Phyllotreta sinuata, Steph.
 †Cassida nebulosa, L.
 †Blaps mucronata, Latr.
 † „ similis, Latr.
 *Tenebrio obscurus, F.
 * „ molitor, L.
 *Tribolium ferrugineum, F.
 * „ confusum, Duv.
 *Gnathocerus cornutus, F.
 *Alphitobius diaperinus, Panz.
 * „ piceus, Oliv.
 *Alphitophagus bifasciatus, Say
 (= 4-pustulatus, Steph.).
 *Palorus depressus, F.
 Xylita lævigata, Hellen.
 Phlæotrya Vaudoueri, Muls.
 (= rufipes, Steph.).
 Pytho depressus, L.
 †Nacæderes melanura, L.
 *Anthicus floralis, L.
 * „ quisquilius, Th.
 †Barynotus Schönherri, Zett.
 †Otiorrhynchus sulcatus, F.
 † „ picipes, F.
 † „ ovatus, L.
 † „ rugifrons, Gyll.
 † „ maurus, Gyll.
 †Phyllobius calcaratus, F.
 †Sciaphilus muricatus, F.
 †Exomias pellucidus, Boh.
 †Strophosomus coryli, F.
 Sitones lineellus, Gyll.
 † „ hispidulus, Germ.
 † „ flavescens, Marsh.
 „ tibialis, Herbst.
 † „ crinitus, Oliv.
 †Hypera punctata, F.
 „ elongata, Payk.
 † „ nigrirostris, F.
 Grypidius equiseti, F.
 Errirrhinus æthiops, F.
 Tanysephyrus lemnae, Payk.
 Acalyptus carpini, Herbst.
 †Anthonomas pomorum, L.
 †Elleschus bipunctatus, L.
 † „ scanicus, Payk.
 †Cionus scrophulariæ, L.
 †Cryptorrhynchus lapathi, L.
 †Ceuthorrhynchus rapæ, Gyll.
 „ erysimi, F.
 † „ cyaneipennis, Germ.
 †Phytobius velatus, Beck.
 Rhinoncus pericarpus, L.
 †Baris scolopacea, Germ.
 *Calandra oryzae, L.

**Calandra granaria*, L.

†*Codiosoma spadix*, Herbst.

†*Platypus cylindrus*, F.

**Hypothenemus eruditus*, Westw.

Trypodendron lineatum, Oliv.

‡*Xyleborus xylographus*, Say

(= *saxeseni*, Ratz.).

† „ *dispar*, F.

‡*Dryocastes autographus*, Ratz.

†*Scolytus rugulosus*, Ratz.

†*Hylastes obscurus*, Marsh.

Horsell: *February 13th*, 1895.

EXTRACTS FROM A NOTE BOOK.

BY JOHN H. WOOD, M.B.

PÆDISCA OPPRESSANA.—The larva feeds in the spring within the buds of *Populus nigra*, but its manner of life previous to this has not, I think, been recorded, nor where and how it passes the winter. Hatching in the autumn, it proceeds after the fashion of a *Hedya* to make a small spinning on the under-side of a leaf. As the larva eats away the surface of the leaf, so does the size of the spinning increase. 'Trumpet-like in shape, and interwoven with frass, these webs are placed in the angles of the ribs. Frequently several are found under the same leaf, but each in its own corner, one beyond the other up the line of the midrib. The larva leaves before the fall of the leaf, and making a tiny cocoon on the branch, remains there till the approach of spring summons it once more to an active life. The curious tubes, something like the cases of a *Coleophora*, built out from the infested buds, serve probably as safety-chambers, into which the larvæ can retreat when moulting and helpless. For the rapidity with which the woody tissue grows in a warm season is surprising, and without some such provision the larva would be exposed to a dangerous amount of squeezing, or else be forced to withdraw and lie outside, a tempting morsel to any roving bird. As some sort of proof, I may add that I have actually seen the larva moulting in the tube, and that, except under these circumstances, the structure has always been empty.

DICRORAMPHA PLUMBANA.—I was once asked by Mr. Barrett if I knew the larva of this species, and had to confess that I did not. That was a long time ago, and since then my valued friend has doubtless discovered the answer for himself. However, as nothing seems to have been written in our various periodicals upon the natural history of this, one of our commonest and most universally distributed insects, I will venture to relate what I now know about it. I first obtained the larvæ in March and April, 1887, by digging up plants of

oxeye daisy (*Chrysanthemum leucanthemum*) from railway banks and quarries. They were living on the roots along with *D. plumbagana*, but could be distinguished from that species by their habits quite as much as by their appearance. *Plumbagana* was tunnelling in the centre of the root stocks, and working occasionally a short way into the growing shoot, whilst there was evidence from old scarring, &c., that it had lived at an earlier stage on the surface of the stocks under a web. This tallies to a nicety with the observations of Mr. Barrett (vol. xvi, p. 238), except that in his case the food-plant was yarrow (*Achillea millefolium*). To his description of the larva I need add nothing, beyond saying that mine had a greenish tinge, due probably to food, and that the anterior trapezoidals were round like the posterior ones, and of the same size.

Plumbana occurred deeper down, in the roots rather than the root stocks, grooving them deeply under cover of a web, yet, strange to say, in its case also a different practice had been followed earlier, and the hearts of the roots and root stocks had been occupied. Thus both species in the course of their life change to some extent their habits, but in opposite directions, for the one passes from the surface to the interior, the other from the interior to the surface. The larvæ were of moderate proportions and nearly uniform bulk, yellowish-white and opaque, but becoming somewhat transparent just before spinning up; head amber coloured, with black mouth parts, plates and legs ochreous, spots untinted with grey, and consequently inconspicuous. Those taken in March were still feeding, but the April ones were making up. The imago was freely bred.

My next acquaintance with it was under totally different circumstances. At the latter end of August, 1893, two larvæ were found mining in the stems of yarrow. They had entered near the top, had travelled down some five or six inches, packing the gallery behind them with frass, and had reached within an inch of the root stock. I judged them to be in their last skin. The shoots were not drooping, but they ended in strikingly small panicles, and it was this circumstance that led to their examination. Having brought them home, I took two strong plants, cut the stems off short, and having drilled a small chamber in the stumps, placed the larvæ within and planted them in a flower pot. The description of the larvæ taken at the time corresponded accurately with that of the daisy feeders, and need not, therefore, be repeated; the essential character being the colourlessness of the spots. In the second week of the following June one moth was bred.

Whilst on the subject of the *Dicrorampha*, I may as well draw attention to a small mine, more commonly empty than full, that I have at various times in the autumn found in the stems of yarrow, because I feel pretty sure it belongs here. The larva usually enters at the site of an eye, runs a very narrow mine for about an inch down the pith chamber, and leaves. What then becomes of it I cannot tell. I suspect it crawls down to the root, and there takes on the form and habits of some well known *Dicrorampha*. Although the genus is essentially a root-feeder, probably the young larvæ of all, or nearly all, the species inhabit at first the stalks, or it may even be the flower-receptacles, of their food-plants. Indeed, I did on one occasion see a *Dicrorampha* lay an egg on the scales of the flower of an oxeye daisy, but was unable to ascertain the species.

PAMPLUSIA MERCURIANA, Hb.—It is hardly justifiable, perhaps, to describe a *Tortrix* larva from a single specimen, especially where the form is extremely commonplace. The following has stood in my note book for a long time, waiting for that further confirmation which has not yet come, and I transcribe it for what it may be worth:—“Cylindrical, of nearly uniform bulk, semi-transparent, and of a dirty greyish-green, with a tinge of yellow on the ventral surface; head shining, pale brown; thoracic plate darker than the head, grey, with the hind-margin black; anal plate ochreous, spots inconspicuous.”

The larva fed on heather (*Calluna vulgaris*), tying the shoots, if my memory is correct, tightly together. It was taken on the Herefordshire part of the Black Mountains, the 22nd of June, 1888, and the moth emerged on July 18th. The occurrence of this charming little insect so far south was a pleasant surprise; a specimen of the imago has been picked up occasionally since, but it is certainly not common. The locality is a long, flat-topped hill, 2000 ft. or thereabouts above the sea level, and having the flora characteristic of such a situation. Besides *mercuriana*, such northern forms as *Amphisa gerningana*, *Peronea caledoniana*, *Nemophora pilella*, *Argyresthia sorbiella*, *Gelechia longicornis* and *politella*, together with *Elachista kilmunella*, *Lithocolletis vacciniella*, and *Nepticula Weaveri*, give a day's collecting on this ground a singular fascination to one accustomed only to a southern and lowland fauna. Doubtless many another good thing is yet to be added to the list, but the spot being at least half a day's journey distant, only a visit at rare intervals can be managed, and weather, moreover, has to be discounted, for seldom can an absolutely perfect day fall on such bleak and elevated ground.

PERONEA CRISTANA.—I fancy there is much room for information about the larva of this species, yet I cannot pretend to supply the want, although I once bred the moth from a specimen found on wild rose in July. It was supposed at the time to be *Batodes angustiorana*, but the grey thoracic plate was noted to be unusually dark for that species. *Angustiorana*, I need scarcely say, is a slender and very active larva, of a clear pale yellow colour, not unlike candy-sugar, with a pale honey-brown head, and still paler thoracic plate. Another *Peronea* I had the pleasure of breeding last year, and one not often seen in our jars, was *umbrana*: it was strikingly beautiful, fresh from the pupa. The larva was obtained from hawthorn in July, but no note of it was taken.

CATOPTRIA ULICETANA—Early in April, 1892, I came upon some plump little larvæ in the pods of *Ulex gallii*, clearing them one after the other of their contents. Briefly described, they were short and stout, heavier in front than behind, but with small heads; yellowish-white; the head honey-brown; thoracic plate ochreous, shaded behind with grey; anal plate faintly greyish-ochreous; spots indistinct, small and grey. In the beginning of May they began to spin up. Some remained for this purpose in the pods or among the calyces, others left and wandered about until they found a congenial corner among the general rubbish. It was a long time before they pupated, so that what with mould and ichneumons, from which they suffered cruelly, I only reared three specimens, and should probably have failed even of this moderate success had I not, when in despair over the first mentioned evil, brushed all the material carefully over with the *Glycerinum Boracis*, P. B., which effectually stopped its inroads. One moth emerged in the second week of July, another on August 3rd, and the third still later. They were all alike—very small ($8\frac{1}{2}$ mm.) and dark.

I had expected something good, and to breed only the common *ulicetana* was in a way disappointing. However, it may throw some light upon the habits of the insect, and especially upon the nature of its double-broodedness. The first flight swarms round the bushes of the common gorse (*Ulex europæus*) in May, it then disappears for a time, but later on is once more on the wing from July to September, though in very much scantier numbers. I think it is commonly supposed that these autumnal specimens are the produce of the spring flight, but from what has been related above it would rather seem that the two flights are either independent broods, or else two parts of one and the same brood, the larvæ of the spring flight feeding up in the

autumn, and those of the autumnal flight in the spring. Probably the small size of my specimens was owing to the unfavourable conditions under which they were reared, for in nature the one set of moths is every bit as fine as the other. *Ulex gallii* offers a curious contrast to *U. europeus*, by blossoming in the autumn and ripening its seeds in the spring.

LOBESIA BELIQUANA, Birch (*Betula glutinosa*) is a food-plant for this *Tortrix*, as well as *Prunus spinosa*. I have obtained it on several occasions from the plant. A suggestion thrown out that it may feed on oak is, therefore, likely enough some day to come true.

HYPONOMEUTA PADELLUS.—A fact in its economy I came across the other day is, perhaps, worth recording. The larvæ in the spring are at first leaf-miners—many together in a common mine. Frequently two or three mined leaves lie close together, and the several parties on taking to the web-life join to form one large colony. They moult once in the mine.

GELECHIA GEMMELLA.—The moth flies towards evening throughout September in oak woods, and may also be jarred in the afternoon out of the tops of the sapling trees. To hunt for its larva would be pretty well a hopeless business, for it is in the tops of these same young oaks, and in the buds or shoots that the animal feeds; and it was quite by accident, and when after a totally different quest, that the solitary larva I ever saw was taken. We (Dr. Chapman and I) had been looking one day late in June for the egg-pockets of *Adela viridella*, and as no success attended our search, a handful of small boughs was gathered from the heads of the trees for more careful examination at home. During this examination, in partially removing a leaf that sprung from the base of a fat terminal bud, a cavity was exposed that led down into the shoot, and also extended a short way up the stalk of the leaf. Expecting that I might have something very choice, I was chary of enlarging the opening much in order to get a complete view of the larva. Nevertheless, the following description, so far as it goes, may be taken as accurate:—"Slender, transparent, watery-white, and shining. Head honey-brown, eyes black; thoracic plate honey-brown, speckled with grey; spots large and pale grey, those on the thoracic segments very large. Unfortunately, no mention is made of the shape of these spots, nor whether segments 3 and 4 had each four spots on the back, viz., a large outside pair and a small inside one, each spot armed with a hair, which is the arrangement so characteristic of

the *Gelechiidæ*, or whether instead the arrangement was that of *Micros* generally, viz., a single pair of spots, each with two hairs, one long, the other short. The larva spun up *in situ*, and the moth came out in September.

RÖSLERSTAMMIA ERXLEBELLA.—Some doubt was thrown in the pages of this Magazine (vol. xvi, p. 94) upon the mining habits of the larva of *Erxlebella* when young. There is no question, however, about the correctness of this phase in its natural history, and what is more, some degree of specialization is shown by a particular part of the leaf being invariably selected. This part is the pointed tip. The mine is a rather broad and conspicuous gallery, it follows the edge of the lime leaf and passes round the point, but reaches considerably further on one side than on the other. The larva moults (its first moult, I imagine) just before it leaves to spend the rest of its life exposed on the under-side of the leaf.

Tarrington, Ledbury :

June 7th, 1895.

DASYPODA EATONI, SAUND., AND CINGULATA, ERICHSON.

BY EDWARD SAUNDERS, F.L.S.

The appearance of Prof. v. Dalla Torre and H. Friese's Catalogue of the pollen collecting bees of Europe has reminded me of two corrections which I have for some time intended to make in the synonymy of the species of *Dasyпода* as given in Schletterer's most useful Monograph published in the Berl. Ent. Zeitschr., Bd. xxxv, p. 11, *et seq.*

In vol. xviii of this Magazine, p. 167, in my "Notes on the Entomology of Portugal, Hym. Acul.," I described the ♂ of a new species of *Dasyпода*, under the name of *Eatoni*, and recorded the capture of four ♂ of what I determined to be *cingulata*, Erichs.; the former of these Schletterer places as a synonym of *discincta*, Rossi, although he expresses some doubt as to the certainty of this determination.

The characters he assigns to the ♂ of *discincta* are so clearly defined that I can positively state that my species is abundantly distinct; it has neither the curved femora nor the apically produced tibiae of *discincta*, of which species I possess several examples. It belongs, however, to the short cheeked division, of which three other species,

succincta, Linn., *plumipes*, Panz., and *pyrotrichia*, Först., are enumerated and described by Schletterer; its simple antennæ separate it from *succincta*, Linn., the absence of the adpressed apical bands of pubescence on the abdominal segments from *plumipes*, Panz. (our *hirtipes*), so that there only remains *pyrotrichia*, Först., to which it could belong; the colours of the pubescence, however, do not seem to agree with Schletterer's description, and the 2nd joint of the flagellum is distinctly shorter in proportion to its length than in his representation of it in plate I, fig. 8; but as I have never seen an exponent of *pyrotrichia*, I do not like to speak for certain as to its distinctness.

My *cingulata*, Schletterer places as a synonym of *plumipes*, Panz.; in this reference he is possibly right, but if so, my specimens belong to a very extreme variety of the species, the hairs on the disc of the mesonotum are black, all the abdominal segments (except the basal one) have black hairs at the base, the 2nd has no apical band of adpressed pale hairs, that of the 3rd is very widely interrupted, and that of the 4th very narrowly; the 4th, 5th, 6th and 7th segments are densely clothed (except at the apex of the first three) with black bristly hairs; the genital armature is built much on the same plan as that of *plumipes*, but the sagittæ are narrower and have longer points, and the stipites on their inner margin, near their greatest width, are dilated, and the dilatation is densely clothed with short, brown, erect pubescence; I can see no trace of this character in *plumipes*. I am, therefore, disinclined to believe that they are identical, at any rate without seeing females from the same locality from which my males of *cingulata* were obtained.

27, Granville Park, Lewisham, S.E.:

May 13th, 1895.

"*SERICORIS INGRATANA*" CUM CETERIS PARIBUS.

BY THE RIGHT HON. LORD WALSHINGHAM, M.A., LL.D., F.R.S., &c.

All entomologists who possess good collections, or an intimate acquaintance with our native species, and more especially those who combine some knowledge of European and exotic forms, have probably a somewhat extensive correspondence, and are frequently called upon to assist in identifying obscure specimens which have puzzled their less fortunate or less experienced friends. Such specimens as are

submitted for determination are not unusually found to be in moderate or poor condition, which makes it all the more important to exercise a wholesome caution before pronouncing any decided opinion as to their rarity or novelty.

It sometimes happens that however guarded may be the language in which an opinion is given, the anxious enquirer is so convinced that his specimen is either new to science or new to England, that he cannot refrain from making it known to his friends or rivals with a proper flourish of trumpets, and he is tempted to quote the authority of any specialist to whom he may have referred it in support of his claim either to describe it as new or to introduce it as British. May I plead in the interests of accuracy and precision that, except perhaps in the rarest and most obvious instances, this should not be done on the evidence of any single British specimen. Our lists are already too densely crowded with synonyms, and what will be the task of the Staudinger or Wocke of the future if he should undertake to compile a complete Catalogue of the *Lepidoptera*, without shirking the task of at least an attempt to identify and include every species or variety that has been honoured with a description and a name?

If a rare or new species is found it soon becomes better known, its habitat or life-history is discovered, and a time arrives when all danger of confusion may have passed away, and it can be duly distinguished and published; but in how many cases have newly-described species remained unique specimens on which no subsequent study or investigation has thrown any light. If the types perish, all clue to their possible identity is lost, and the names remain to crowd our lists and to perplex those who read them.

My only object in this note (justified by bought experience) is to urge additional caution not only on those who may think that they have made a discovery; but equally on those who, without intending to do so, may, by some expression of opinion, however guarded, tend to encourage that belief in cases where further evidence at least should be required to confirm it.

Many there be who love to steer
 Where guarded caution slowly led;
 And some there are, who scorning fear,
 Incautiously rush on ahead.
 The man who takes his cheese for chalk
 May bite a stone and call it bread:
 But who so bold as dares to walk
 Where such an angel fears to tread.

June, 1895.

OCCURRENCE OF *SOLENOBIA WOCKII*, HEIN., IN BRITAIN.

BY C. G. BARRETT, F.E.S.

When at Birmingham last winter I noticed in the collection of my friend Mr. R. C. Bradley, at Sutton Coldfield, a specimen of the male of a species of *Solenobia* unknown to me. In response to my urgent request he, and Mr. Martineau of Solihull, gave up their spare time at Easter to a systematic search for the species in the Wyre Forest district, on the borders of Worcestershire and Salop. On April 15th one specimen was taken at about 8.15 a.m., three others the next morning between 8 and 9 o'clock, one at 6 p.m. of that day, and a sixth at 10.15 a.m. on the 17th. At the same time search was made in the edge of the Forest on tree trunks and walls in the boundary lane, and even on old apple trees in a neighbouring orchard, for the cases, and, if possible, females, but unfortunately without success. Of these specimens three were promptly forwarded to me, but pressure of other work has delayed their identification until quite recently, when at the British Museum at South Kensington I found, in the collection of the late Professor Frey, of Zurich, specimens agreeing most accurately with them, under the name of *Wockii*, Heinemann, and labelled "Silesia," hence probably from Dr. Wocke.

Solenobia Wockii, as described by Heinemann, is of a "yellowish-white-grey," distinctly latticed with brown-grey, and with darker dots on the nervures and costal margin; the pale spots rather large; cilia unicolorous; hind-wings with the apex rather broad, semitransparent light grey; head dull grey, darker at the back; body blackish, banded with grey. Expanse, $2\frac{1}{2}$ to $2\frac{3}{4}$ lines. Female apterous, yellow-brown, with a snow-white anal tuft. Case of the male $2\frac{1}{2}$ lines long and $\frac{1}{2}$ line thick, cylindrical, constricted at each end, without distinct angles; that of the female almost 4 lines long, flat beneath, with distinct lateral and dorsal angles; covered with grains of sand and morsels of lichen.

The full description is rendered obscure by constant references to closely allied species (*S. pineti* and *S. Mannii*) which are not known to occur here; and as may be expected, the yellowish colouring is exceedingly indistinct in the British specimens, and the dark flecks and latticing more pronounced, but the proportionately large whitish spots or interstices agree well, and I think that there is no doubt of the correctness of this identification. That Mr. Bradley's specimens agree with Frey's types is beyond question. In Mr. Stainton's collection I find a single specimen of the same species among his specimens of *S. inconspicua*, and from its being labelled "Edleston," I have little doubt that the present species is that which was alluded to by Mr. Edleston in the *Intelligencer*, vol. v, p. 146, as either *triquetrella* or a

new species. He appears, from his remarks, to have had a more intimate acquaintance with the species of this genus nearly forty years ago than we can boast of now, or indeed at any time since. For many years we have heard nothing of the cases which he used to find on large stones of millstone grit on the moors (in North Wales?), which were understood to produce *S. triquetrella*, and further investigation will be required before we can satisfactorily ascertain whether this last is actually a native species or, so far as this country is concerned, merely synonymous with *S. Wockii*. *Triquetrella*, as known abroad, is larger and paler, with the reticulations or latticing very faint and the fore-wings more pointed, much like another Continental species, *S. clathrella*, but not so large.

Heinemann describes *S. triquetrella* with long fore-wings, brownish ash-grey, with broad darker nervures, and dappled abundantly with grey-white spots; hind-wings *blackish*; head small, brown in front; expanse of wings, 3 to 3½ lines. Female dark brown, with blackish-brown head and thorax, and whitish-grey anal tuft.

S. inconspicua he describes as smaller, 2½ to 2¾ lines expanse, fore-wings narrower, brownish-grey, latticed with whitish-grey flecks; margin and cilia dotted with brown-grey. Female smaller than that of *S. Wockii*, rust-yellow with dark brown head and white anal tuft.

These details, with the measurements, represent pretty accurately the three species, and appear to confirm the present identification; but the group is obscure, the species *very* closely allied, and further information upon all of them is much to be desired.

It may be desirable to point out that the species named *S. triquetrella* by Fischer von Röslerstamm cannot well be that referred to above, nor indeed a member of the present genus, since it is described as having pectinated antennæ. Probably it represents one of the species of *Epichnopteryx* among the *Psychidæ*.

I feel certain that the Lancashire Entomologists used at one time to find *Solenobia* cases in numbers by turning over the loose blocks of stone on the moors or hill sides; and if those of the present day will brace themselves, like their predecessors, to the physical labour of turning over the loose blocks, there is little doubt that they will be rewarded. To obtain males it will be necessary to secure the *smaller* cases, unless the moths can be captured. It is hardly likely, however, that these will fly so readily on an exposed moor or mountain side as in a sheltered spot at the edge of a Worcestershire forest. Possibly it may be desirable to imitate the Midland workers by *getting up early in the morning*.

39, Linden Grove, Nunhead, S.E.:

June 13th, 1895.

OBSERVATIONS ON *COCCIDÆ* (No. 11).

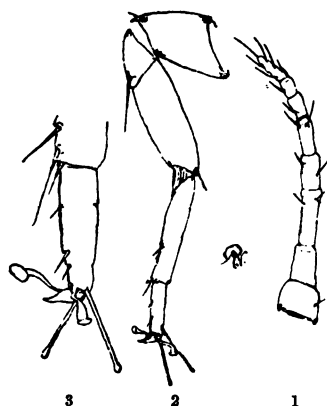
BY R. NEWSTEAD, F.E.S.,

CURATOR OF THE GROSVENOR MUSEUM, CHESTER.

LICHTENSIA VIBURNI.

Lichtensia viburni, Sign., Ess. Cochin., p. 204, pl. x, figs. 7 and 7a; Douglas, Ent. Mo. Mag., vol. xxiv, p. 167.

♀ adult. Antennæ of eight joints (fig. 1, left antenna); 3 the longest; 1, 2 and 4 in length nearly equal; 5 a little longer than either of the latter, but much shorter than 3; 6 and 8 nearly equal, the latter the longest; 7 shortest; the fine hairs are arranged as shown in the figure. Legs (fig. 2, posterior), in length equal, but owing to position, the anterior pair seem a little the shortest in some specimens; tarsi much shorter than tibiae; anterior tarsi (fig. 3) with a constriction on the upper-side, in some it is situate at about one-third of the distance from the tibio-tarsal joint, in others in the centre; digitules of the tarsi ordinary, those of the claw very long, broad, and much dilated at apex, presenting different forms according as they are placed beneath the cover-glass; placed close together at the apex of the tibiae beneath are two hairs, one much longer than



the other, and a little behind them a third. Mentum monomerous; unexpanded filaments shorter than antenna, but variable, some are much shorter than others. Anal dorsal lobes: inner margin with two long hairs; apex with two very minute, blunt, spine-like processes. Anal ring with eight hairs. Margin all round with rather long spines, easily seen with a one-inch objective, are shaped like a mason's chisel, but in profile they appear pointed.

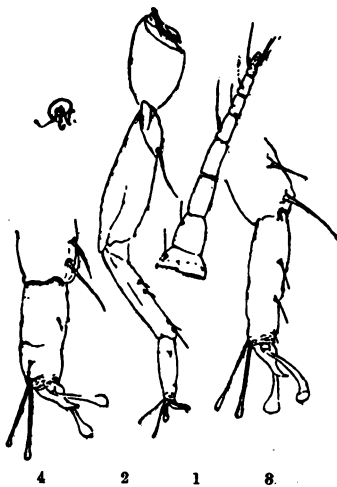
Mr. Douglas (*l. c.*) has so fully dealt with the general characters, that it is only necessary here to give the more minute details, with figures, in order to facilitate the comparison with the next species, to which it is very closely allied.

It may be well to add, that I find a very slight tendency to variation in the relative length of the joints of the antennæ. It will be found on comparison that Signoret's description (*l. c.*) of the antenna does not agree with his fig. 7; we may, therefore, assume they were made from different individuals. Also Mr. Douglas (*l. c.*) did not find the 7th joint the shortest. The variation, however, must be considered exceptional. The characters given above may be considered typical. The description is from specimens taken at Llandaff by Mr. B. Tomlin. In my garden at Chester I have been fortunate in

establishing a large colony of them on ivy, and it is hoped that some interesting facts in regard to the economy of the species may be observed.

LICHTENSIA EATONI, n. sp.

♀ adult (♀ viviparous), elongate-ovate, or short-ovate. The form of the insect did not restore very well in potash. Antennæ (fig. 1) of eight joints; 2, 3 and 4



nearly equal, and longest; 5, 6, 7 and 8 shorter and subequal; 1 is shorter on one side than the other; there are several rather short hairs arranged as shown in fig., but I could find no trace of one at the *extremity* of the last joint.

Legs stout (fig. 2, posterior leg); anterior pair shortest, have the tarsi (fig. 3) constricted in front, which is constant but variable in character and position; in some it is very decided, darker, and looks stronger; in others these latter characters are entirely wanting; the rest of the constriction in every case is only indicated by a faint line extending to about the middle; in one instance only did it extend to the under-side. The intermediate and posterior legs show no trace of the constriction in the tarsi (fig. 4, posterior tarsus);

tarsi much shorter than tibiae; digitules of the claw very long and much dilated at apex; those of the tarsi ordinary. Mentum monomerous; unexpanded filaments about the same length as anterior legs, but are often much shorter. Anal ring with eight very long hairs, and a double row of circular discs. Margin all round with a single row of short spines, arranged close together, but scarcely visible under a one-inch objective. Anal cleft ordinary; anal dorsal lobes each with a few hairs on inner margin and two at apex; one longer and stouter than the other.

Long, 5 mm.; wide, 2.5 mm.

Sac of the ♀ complete, white, closely felted, slightly narrowed in front, where it is somewhat flattened, and has, generally, three longitudinal carinae; the rest convex.

Long, 4.5—5 mm.; wide, 2.5—3 mm.

♂ scale glassy, white, with a strong central elevated keel, opaque on the edge, transparent at sides, where it is longitudinally striate. Commencing at the base of the anal cleft, and extending along the sides at the base of the keel, to the margin in front, are two divergent, white, slightly raised carinae; three other of these white carinae, arranged transversely and equidistant, are most conspicuous on the broad flat margins.

Long, 2 mm.

Hab.: on olive; Constantine, Algeria; altitude, about 2000 feet. Collected by the Rev. A. E. Eaton, October 30th, 1894.

It has been necessary to enter into most careful detail in the description, and also to give figures drawn to the same scale, both of this and the preceding species, in order to point out the salient characters of each. It will be seen that this species possesses many

characters in common with *L. viburni*. By the most careful comparison of actual specimens of this latter has it been possible to establish the distinctive characters of this interesting species, which may be recognised by its shorter 3rd and 5th joints in the antennæ; the shorter anterior legs, with the constricted tarsi; much shorter marginal spines; and the complete sac.

The scale of the ♂ is decidedly smaller than that of *L. viburni*, but differs in no other respect. It may be well to note that some of the ♀ sacs appeared much larger than the measurements given above, but being badly fractured, it was considered unwise to take the measurements.

DACTYLOPIUS HIBERNICUS, n. sp.

♀ adult oviparous, elongate-ovate, covered with a sac at gestation. Antennæ



(fig. 1) of eight joints, of which 8 is the longest and about equal in length to 5, 6 and 7 together; 1 and 2 together about equal to 8; 3, 4, 5, 6 and 7 shortest and subequal; all with many fine hairs. Mentum biarticulate; on either side of apex several (? five) rather long hairs, arranged close together; rostral filaments, unexpanded, shorter than anterior legs. Legs (fig. 2) long, posterior pair longest; tarsi with claw about half the length of the tibia, with four very slender digitules. Anal lobes large, studded with numerous short, stiff spines and hairs, each terminated with a single long hair. Anal ring of six hairs. Dermis with short scattered hairs; and at margin in front many scattered circular discs. Long, 4 mm.; wide, 1.55 mm.

Sac of the ♀ white, closely felted and complete, but easily ruptured. Long, 4—5 mm.; wide, 2.55—3 mm.

Hab.: in the "crowns" of a species of grass in sandy soil, on a chalk cliff close to the sea, at Ballingtoy, Co. Antrim, Ireland. Collected by Miss Tomlin, September 3rd, 1893.

This differs from any other known European species in constructing a complete felted sac. In this respect it resembles the African *D. graminis*, Mask., and the New Zealand *D. globosus*, Mask., but the sac is more felted than either of the above. Altogether it seems quite distinct, and is the second species of *Dactylopius* now known to occur in the British Isles.

It would be interesting to have this species in its earlier stages, especially that immediately prior to gestation, as it is not now known whether it possesses the ordinary marginal appendages common to most species. One of the specimens examined was badly parasitized, but *did not* differ from any of the perfect examples.

I am greatly indebted to Miss Tomlin for the discovery of this interesting species.

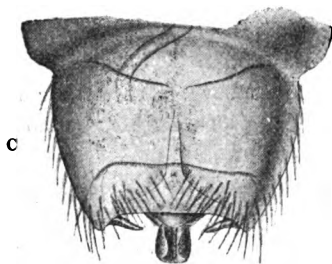
Chester: May 23rd, 1895.

OXYETHIRA TRISTELLA, n. sp.

BY PROF. FR. KLAPÁLEK, F.E.S.

Tufts of hair on the face below the antennæ silky yellowish, or very pale fulvous, except the tips and external hairs, which are black. The hairs on the vertex silky yellowish, and those on the occipital warts mixed with black. Clot'ing of the pronotum wholly black. The tufts on the shoulders silky yellowish mixed with black. *Antennæ* (which are in the ♂ 85- in the ♀ 25-jointed) show in the ♂ some variation in colours. The last five joints are always very pale fulvous, almost white; one of the extreme forms has all other thirty joints black, growing paler from the middle towards the base; in the other extreme form we find the next four joints black, the two following paler, four black again, and the rest pale with a slight blackish tint; the different grades of variation being due to the variable intensity of the black colour. In the ♀ the last five joints

are also very pale fulvous, the next three intensely black, and the remaining seventeen of the same colour as the tip. *Palpi* pale fulvous; the external side of the 3rd joint of the maxillary palpi is clothed with black hairs. *Legs* of the same colour as the palpi, and their femora likewise with black hairs. On the hind-legs are very



long fringes. *Wings* black; at the apex, in the basal third and the middle of the posterior margin, on the triangular spot extending from the middle of the anterior margin towards the middle of the wing (the usual and very characteristic spot in this genus), and on some little spots dispersed on the wing, the hairs are almost wholly white. Posterior wings blackish. Fringes blackish, save where the paler markings intersect them, and slightly

bluish iridescent. Neuration arranged in the same manner as in *O. costalis*. Body blackish, the ventral surface clothed with silky yellowish hairs.

The lateral margin of the last margin is produced on either side into a stout and long tooth, strongly incurved and acute. The ventral plate is narrow, deeply

trifid, black at the apex; its lateral lobes hook-like and curved upwardly, the median lobe thickened and rounded at the apex. The pair of hooks above the ventral plate is strong and black. The base of the penis cover forms four little tubercles (the two median being smaller), each of which bears a pellucid, acute and straight spine. In all my examples, which are very numerous, the penis is retracted, but so far as one can see, it is quite symmetrical, with a single sheath.

♀ as usual in this genus.

Expanse, ♂, 5 mm.; ♀ a little larger.

This species is very distinct, on account of the anal parts of the ♂. In its trifid ventral plate it shows affinity to *O. fulcata*, Mort., but the form of the plate is very different. The lateral teeth of the last segment remind us of *O. costalis*, Curt., but they are more slender, and stand a little more dorsalward, similar to the triangular production of the same segment in *O. fulcata*. It is very interesting that the genus *Oxyethira*, as also other genera of *Hydroptilidæ*, which show great constancy in the pattern of colouring and neurulation, have such strong differences in the anal parts.

In May very common on the "Zlata Stoka" in Trëbon.

EXPLANATION OF THE FIGURES.

Anal parts of *Oxyethira tristella*, Klip., ♂.

A—from below, × 210. B—from side, × 210. C—from above, × 160.

Trëbon, Bohemia: June 1st, 1895.

ON NEW AND OBSCURE BRITISH SPECIES OF *DIASTATA*.

BY R. H. MEADE.

Having been laid up by a long illness I have been unable to notice some remarks made by Mr. Verrall at p. 88 in the number of this Magazine for April, 1894, respecting some species of *Diastata* recorded as new to Britain by Mr. Beaumont in the previous number, which had been named by me. With respect to the first named species, *D. obscurella*, Flin., this was evidently mentioned by an oversight, as it had been described long before as British by Walker in the "Insecta Britannica," and included by him in the genus *Diastata*, though it has been now restored to that of *Geomyza* by Mr. Verrall. The specimen which I named *D. basalis*, Mgn., was an imperfect example, in which the wings were damaged, and I could not see the characteristic marks denoting *D. notata*, to which species it probably belonged. The abdomen in both cases is described as being yellow or translucent at the base, whence my mistake. The species which I called *D. fumipennis*, Mgn., may probably be the same as *D. nigripennis*, Lw., but I do not know that species, and have not met with Löw's description of it, neither is it recorded in Mr. Verrall's lists.

Among the specimens sent to me for examination by Mr. Beaumont I found a *Diastata* which I think I may safely record as new to Britain, viz, *D. unipunctata*, Ztt. This well marked little species was captured by Mr. Beaumont at Pitlochry, N. B., in 1892, it is characterized by having the thorax dark grey; the abdomen quite black and immaculate; the forehead and basal joints of the antennæ luteous; the legs fuscous, with paler tibiæ; the wings subfuscous, with a dark mark at the base and a large black patch covering the outer cross vein, the inner cross vein being clear.

Bradford, Yorks:

June 13th, 1895.

SPECIES QUATUOR NOVÆ FAMILIÆ ANTHOCORIDARUM.

DESCRIPTÆ AB O. M. REUTER.

LASIOCHILUS (DILASIA) ASSINIENSIS, n. sp.

Piceus, oblongo-obovatus, nitidus, fusco-pilosulus, hemielytris fuscis, unicoloribus, leviter nitidulis, pilis adpressis sat longis sub-aureis parcius pubescentibus; rostro, antennis pedibusque flavo-testaceis; antennarum articulo secundo primo duplo longiore, apice picescente; pronoto basi longitudine fere duplo latiore, lateribus breviter ciliatis versus apicem modice angustatis et paullo ante apicem distincte arcuatis, disco sulco longitudinali utrinque et præcipue antice abbreviato; hemielytris lateribus vix nisi brevissime ciliatis; rostro articulo primo insertionem antennarum attingente. Long., 1½ mm.

Patria: Assinia, Africæ occidentalis. D. Ch. Alluaud.

L. (D.) corticalis, Reut., sat affinis, sed multo minor, pronoto minus transverso, sulco longitudinali brevior etc. divergens. Caput piceum, nitidum, cum collo latitudini cum oculis æque longum, prolongatione ante bases antennarum oculo æque longo, fronte disco medio depresso. Rostrum pallide flavens, coras intermedias attingens. Antennæ flavo-testaceæ, articulo primo apicem capitis parum superante, secundo spatio inter ocellos et apicem clypei æque longo. Pronotum capite cum collo paullo longius, basi late sinuatum et longitudine vix duplo latius, apice longitudini æque latum, annulo apicali tenuissimo, ægre distinguendo, lateribus rectis, paullo ante apicem distincte late curvatis, disco sulco medio brevi instructo, basi utrinque depresso; piceum, nitidum, fusco-pilosulum, pilis erectis destitutum. Scutellum piceum, versus apicem depressum et minus nitidum. Hemielytra fusca, leviter nitidula, cum membrana tota unicolora, sat longe parcius flavo-vel fere aureo-pubescentia. Pedes pallide flavo-testacei, femoribus vix obscurioribus.

OPLOBATES, nov. gen.

Corpus oblongum, longe pubescens, superne totum cum hemielytris nitidulum,

marginibus lateralibus pronoti et hemielytrorum pilis retrorsum vergentibus ciliatis; capite inter antennis modice producto, pone oculos in collum latum breve prolongato; fronte inter oculos linea arcuata impressa; ocellis late distantibus oculis valde appropinquatis; rostro basin capitis vix superante, articulo primo brevissimo, secundo marginem posticum oculorum haud attingente; antennis pilosis, articulo primo apicem capitis attingente, secundo apicem versus leviter incrassato primo quadruplo longiore, ultimis gracilibus; pronoto annulo collari tenui intra angulos anticos posito, lateribus immarginatis haud sinuatis, margine basali late sinuato; membrana venis quatuor distinctis; alis areola hamo brevi a vena connectente emissæ, ab origine venæ decurrentis paullo remoto; matapleuris rima orificiorum longa transversali sub angulo rotundato in carinam usque ad marginem posticum mesopleurarum producta; coxis anticis et posticis contiguæ, intermediis paullo distantibus; femoribus anticis sat incrassatis, inferne tota longitudine aciculis tenuibus armatis; tibiis anticis maris versus apicem leviter incrassatis, parum arcuatis, femina rectis; apice abdominis pilis exsertis instructo.

Genus divisionis *Lycocoraria miki*, ab omnibus rostro brevi femoribusque anticis inferne aciculis armatis mox distinctum. Generi *Lasiophilus*, Reut., pilositate similis, rima orificiorum metapleurarum antrosum curvata, scutello toto hemielytrisque nitidulis divergens; generi *Piezostethus*, Fieb., structura rimæ orificiorum sat affinis, sed corpus ut in *Lasiophilo* ciliatum, membrana distincte quadrivenosa.

O. FEMORALIS, n. sp.

Oblongo-ovalis, fuscus, superne longe flavicanti-pubescent; capite ferrugineo; antennis pedibusque testaceis, illis articulo primo tertique apicali parte secundi fuscis, femoribus anticis margine superiore versus apicem infuscatis; hemielytris guttula infra angulum anteriorem apicalem embolii pallida; abdomine fusco-testaceo.

Long., 3½ mm.

Patria: Victoria, Australiæ. Communicavit D. Dr. E. Bergroth.

Caput, collo excepto, æque longum ac latum. Pronotum capite longius, basi fortiter sinuata, longitudine duplo latiore, lateribus rectis versus apicem rotundatis, disco obscuriore pone medium transversim impresso. Hemielytra apicem abdominis paullulum superantia, apice embolii apice corii circiter 4 angustiore, cuneo externe obscuriore. Membrana venis tribus internis basi fere æque distantibus, externa, vel prima, a secunda magis remota. Tibiæ posteriores breviter spinulosæ.

ASTHENIDEA SINUATICOLLIS, n. sp.

(Obs.—In diagnose generis (Monogr. Anthocorid.), p. 5, linn. 3 et 4 infra, *dele* "haud sinuatis," p. 43, l. 5 supra, *dele* "subglabrum vel sat subtiliter pubescens.")

Nigra, nitida, pronoto fusco-piloso, scutello hemielytris pilis vel fere setis nitidis flavis sat longis instructis, hemielytris nigro-piceis, corii basi et angulo interiore apicali maculaque circa angulum anteriorem apicalem embolii pallide flaventibus, membrana fusca, sutura late pallide flavente; rostro, antennis pedibusque picescenti-testaceis, femoribus, apice excepto, nigro-piceis; pronoto lateribus obtus-angulariter sinuatis; hemielytris seriebus impressis punctorum in margine scutellari

commisuraque clavi, utrinque juxta venam clavi et corii, in embolio et in sutura membranae.

Long., 4 mm.

Patria: Baeza, D. Martinez Saez. (Mus. Madrid).

Ab omnibus reliquis pronoto lateribus sinuato, hemielytris flavo-subsetosis distincta. Corpus oblongo-obovatum, nigrum, nitidum. Caput, collo excepto, latitudini longitudine aequale, prolongatione antica margini interiori oculi aequae longa, fronte strigis angulum formantibus tenuissimis, vertice utrinque ad oculum seta erecta. Oculi magni. Rostrum apicem mesosterni vix attingens, articulo primo medium oculi attingente. Antennae pilosae, usque ad basin corii extendendae, articulo primo apicem capitis subsuperante, secundo primo circiter $2\frac{1}{2}$ longiore, apicem versus sensim incrassato, ultimis gracilibus, longitudine aequalibus, tertio secundo fere $\frac{2}{3}$ brevior. Pronotum annulo collari discreto transversim strigato, apice longitudine circiter $1\frac{1}{2}$ angustius, basi quam apice magis quam duplo latius, lateribus medio obtusangulariter sinuatis, apicem versus subaequaliter arcuatis, tenuiter marginatis, disco antico calloso, disco postico pone sulcum sat profundum transversalem fortiter transversim strigoso, angulis posticis laevibus; disco fusco-piloso, marginibus glabris. Scutellum totum nitidum, parte apicali transversim strigosum. Hemielytra abdomen paullo superantia, nitida.

LASIELLIDEA, nov. gen.

Corpus elongatum, parallelum, depressum, nitidum, glabrum; capite latitudine cum oculis vix longiore, ante oculos modice producto, collo sat brevi; rostro coxas intermedias attingente, articulo primo oculos attingente, secundo coxas anticas attingente, tertio primo parum longiore; antennis articulo primo apicem capitis attingente, secundo versus apicem sensim incrassato, duobus ultimis tenuibus; pronoto transverso, trapeziformi, disco depresso, medio canalicula longitudinali distinctissima postice abbreviata, pone tertiam basalem partem transversim arcuato-impresso, impressione retrorsum arcuata, basi late leviterque sinuato, lateribus acutis, ante apicem fortius arcuato-rotundatis, angulis anticis deflexis, annulo apicali solum medio distincto inter angulos posito; embolio angusto, apice ejus apice corii duplo angustiore; femoribus muticis, anticis et posticis intermediis paullo crassioribus.

A genere *Lasiella*, Reut., vix nisi corpore toto glabro et nitido embolioque angusto divergens.

L. GLABERRIMA, n. sp.

Picea, glabra, nitida tota, rostro, femoribus apice, tibiis basi tarsisque pallide testaceis.

Long., $2\frac{1}{2}$ mm.

Patria: Victoria, Australiae. Communicavit D. Dr. E. Bergroth.

Corpus piceum, totum glabrum et nitidum. Antennae articulo secundo primo duplo et dimidio longiore et capite, parte postoculari excepta, aequae longo, tertio secundo circiter $\frac{1}{2}$ brevior. Pronotum capitis longitudine, basi longitudine duplo latius, apice longitudine paululum angustius. Scutellum depressum. Membrana fuliginosa, angulo interiore basali pallidior.

Helsingfors, Finland, Russia:

May, 1895.

Colias Edusa and Hyale in the Isle of Wight.—On Monday, June 3rd, I noticed a specimen of the former on Afton Down, near Freshwater, and on Sunday last, the 9th, while strolling along the cliffs between Ventnor and St. Catherine's, five specimens were seen in all. Unfortunately the business-like pace at which the insects were going, and that over very rough ground, rendered pursuit out of the question, so I am unable to report certainly as to their sex or condition. They were large examples, probably females. While standing on the edge of the cliff, directly under the fog-horn station at St. Catherine's, a specimen of *C. Hyale* passed rapidly within a few feet of me, underneath. Some remarkably fine and fresh looking examples of *Vanessa cardui* were commonly seen on the same occasion.—R. M. PRIDEAUX, Newport, I. W.: June 11th, 1895.

Habit of flight in Saturnia carpini.—Mr. Barrett, in his book on British *Lepidoptera*, speaks of a habit of soaring which *Endromis versicolor* has when struck at with the net and missed. I have never observed this habit in *E. versicolor*, though I have in the next species, *Saturnia carpini*, which frequently adopts that method of placing itself beyond reach of danger. Whenever I missed an *E. versicolor* it usually dodged, and always hurried its pace very much, so much that it was difficult to catch it afterwards. *S. carpini* occurs near Reading every year in more or less abundance, in some seasons it is very plentiful, and males may be seen flying swiftly over our commons in all directions. About mid-day, when *E. versicolor* had finished its flight, I often left the birch plantation to go and have a turn with *S. carpini*. I had only to walk well out on to the open heath where I could see them coming from afar, and where there was plenty of room to run. I had not long to wait before several appeared at once and perhaps puzzled me which to go for. The plan I found best was to get sight of one when distant, make out the way it was heading, and then run and place myself in front so as to have one good stroke at it; if I missed, it either darted straight up into the air and soared till out of sight, or rushed ahead faster than ever. My friend Mr. Hamm tells me that it is not only at the net that *S. carpini* will "sky" in this manner; he has seen it do exactly the same on meeting with an obstruction such as a bush or tree.—W. HOLLAND, 69, Observatory Street, Oxford: June, 1895.

Lita ocellatella, Boyd.—Mr. J. H. Durrant's admirable paper (*ante* pp. 82-84), in which he clearly shows that the first published description of this species was from the pen of Mr. Thomas Boyd, has greatly interested me. It is not surprising that I should have followed Mr. Stainton, who always regarded himself as the insect's sponsor, because, not possessing either the *Ann. and Mag. N. H.* or the *Ent. Wk. Intel.*, I had never come across any of the passages that have shed so much additional light on the subject, and had found no references to them.

Mr. Durrant says there are "two" descriptions of *Gelechia ocellatella* by Stainton, which, according to date of publication, will stand:—

(1). *Ent. Ann.*, 1859, 151-2 published Dec. 14th, 1858;

(2). *Ann. and Mag. N. H.* (3 s.), III, 212 (1859), March, 1859;

but there are in reality three, all published within less than five months, for the above were closely followed by another, which is not identical with either of them, viz:—

(3). *Manual II*, 340 (1859).

The Manual was issued in numbers, No. 29, which contained the description of *G. ocellatella*, being published in the same cover with No. 30, on May 1st, 1859.

EUSTACE R. BANKES, The Rectory, Corfe Castle: May 31st, 1895.

Scymnus pulchellus.—It may interest Coleopterists to know that I am still taking this rarity off the same tree, and on the same side of the tree from which I took so many specimens last year, as recorded in the Ent. Mo. Mag. I have much pleasure in bearing testimony to the accuracy of a statement made by Dr. Sharp in a communication to myself in August last, viz., "That I need not be afraid of exterminating the *Scymnus*, as by taking it freely the food would increase, and the insect will become more abundant than ever."—FREDERICK FOX, Coddenheim, near Ipswich: June, 1895.

Coleoptera near Dumfries.—Being out one day during the first week in May collecting *Agabus affinis* in a shallow marshy place, in the middle of a fir wood much overgrown with long sphagnum, I was most agreeably surprised to find in my net with *A. affinis* a single specimen of *Helophorus tuberculatus*. So far as I know, the first specimen found in Scotland was taken by myself in the autumn of 1879 in flood refuse along the banks of the Nith, below Dumfries; my second specimen, however, is more satisfactory, because I found it at home, so to speak, far removed from any running water whatever.

I presume the following seven species may be additions to the Solway list, if not to Scotland, namely, *Acupalpus exiguus* (3), among damp sphagnum; Lochar moss, Lochrutton Loch, yielded *Hydroporus neglectus* (1), *H. umbrosus* (4), *Stenus providus* (1), *Corymbites metallicus* (4), by cutting up tufts of damp moss, *Gymnetron villosulum* (1), by sweeping the railway banks, *Hedobia imperialis* (2), also railway banks near Dumfries.

Also the following species put in an appearance during the month of May:—*Anchomenus ericeti*, not common, very local, *Calambus quinquelineatus*, this last named species is becoming very scarce, *H. rufifrons*, not common, also new to Solway, *Myrmedonia collaris* (4), by cutting up tufts of damp moss, *Acidota cruentata* (3), *Deleaster dichrous* (1), very rare, *Salpingus ater* (2), beaten from birch, *Cryptorhynchus lapathi* (4), from old decayed sallow, *Gymnetron beccabungæ*, also a few more things which I have not yet identified.—W. LENNON, 11, Brooke Street, Dumfries: June 10th, 1895.

Cænoscelis (Atomaria) ferruginea, Sahlb. —The insect doing duty for this species in British collections should bear the name *C. (Atomaria) pallida*, Wollaston [Ann. and Mag. Nat. Hist., xviii, p. 452, t. 9, fig. 1 (1846)]. *C. ferruginea*, Sahlb. (= *subdeplanata*, Bris.), is larger—2–3 mm. (as against 1½–1¾ mm.)—and has stouter antennæ and a more coarsely punctured thorax; the thorax, moreover, has a sharply defined submarginal carina extending from the base to the apex (in *C. pallida* the submarginal carina is faint, obliterated in front, and viewed from above it appears to join the margin before the apex). *C. pallida*, Woll. (= *Brisouti*, Seidl.), was described from specimens found near Cambridge; it appears to be widely distributed in Europe. I have seen two specimens of *C. ferruginea*—one kindly communicated by M. Fauvel, the other in the British Museum.—G. C. CHAMPION, Horsell, Woking: April 22nd, 1895.

Hydroporus marginatus, Duft.—Supplementing my note in the Ent. Mo. Mag. for May, it may be of interest to record that on Whit Monday in two hours I collected upwards of thirty specimens of *Hydroporus marginatus* at Ramsbury, and had not darkness set in rather earlier than usual I could, no doubt, have taken many more. As far as my experience goes, they frequent the very small carriers in the water meadows, and only once have I taken them in flood refuse in numbers in the main river. On May 25th last I captured at Mickleham sixteen specimens of *Molorchus minor* in the old locality. The insect was plentiful, and I could see it upon the flowers in many cases quite out of reach.—R. WYLIE LLOYD, St. Cuthbert's, Thurleigh Road, Nightingale Lane, S.W. : June, 1895.

Society.

ENTOMOLOGICAL SOCIETY OF LONDON : June 5th, 1895.—LORD WALSHINGHAM, F.R.S., Vice-President, in the Chair.

Dr. Sharp exhibited, on behalf of Dr. G. D. Haviland, two species of *Calotermes* from Borneo, the individuals being alive and apparently in good health ; one of the two small communities (which were contained in glass tubes) consisted of a few individuals of the immature sexual forms and of a neoteinic queen : this latter had increased somewhat in size during the eight months it had been in Dr. Haviland's possession, but no eggs had been deposited, neither had any of the immature individuals developed into winged forms. The second community exhibited consisted entirely of the immature sexual forms, and this community had produced numerous winged adults while it had been in Dr. Haviland's possession. Specimens were also exhibited to illustrate the neoteinic forms that were produced in Borneo after a community had been artificially orphaned. As regards these, Dr. Sharp expressed the hope that Dr. Haviland would shortly publish the very valuable observations he had made. In the case of a species of fungus Termite, Dr. Haviland had found that the community had replaced a king and queen by normal, not by neoteinic forms. Professor Riley remarked that in many cases it would be extremely difficult to artificially orphan a nest without destroying it ; he also commented on the short time in which the queen appeared to have been developed, and on the apparently rapid development of the wing pads, which usually cannot take place except after several moults ; and he expressed his opinion that further information on these points was much to be desired : he corroborated the observation of Dr. Haviland with regard to the great variability in the nests of different years (or even of the same year) of the number of queens, true or neoteinic ; in one nest of *Eutermes morio*, he found one-fourth of the inhabitants to be true kings and queens, although not fully developed. Mr. McLachlan exhibited examples of the female of *Pyrrhosoma minium*, Harris, having the abdomen incrustated with whitish mud through ovipositing in a ditch in which the water was nearly all dried up. He had noticed the same thing in other species of *Agrionidae*. Herr Jacoby exhibited four varieties of *Smerinthus tilia*. Mr. Enock exhibited specimens of the thistle-gall fly, *Trypeta cardui*, and also of *Caraphractus cinctus*, Haliday (= *Polynema natans*, Lubbock) : with regard to the latter insect, he said that he had observed copulation to take place below the surface of the water ; a

discussion followed on this point, in which several of the Fellows took part. Mons. Alfred Wailly exhibited living larvæ of *Rhodia fugax*, and also a cocoon of the species, which is of a bright green colour, and differs considerably in shape from those of all the other known silk-producing *Bombyces*. The Secretary exhibited, on behalf of Mr. T. D. A. Cockerell, of Las Cruces, New Mexico, four species of lac-producing *Coccidæ*, viz., *Tachardia gemmifera*, Ckll., from Jamaica, *T. pustulata*, n.s., and *T. fulgens*, n.s., from Arizona, and *T. cornuta*, Ckll., from New Mexico; in the discussion which followed Lord Walsingham mentioned the fact that an American species of *Micro-Lepidoptera*, belonging to the *Ecophoridaæ*, feeds on the secretion deposited by one of the *Coccidæ*; this species, for which Dr. Clemens created a genus (the name for which was found to have been pre-occupied and now stands as *Euclomensia*), is the nearest ally to the lost *Ecophora Woodiella*, taken many years ago in England. Mr. Roland Trimen exhibited some specimens of "Honey" Ants, discovered at Estecourt, in Natal, about a year ago, by Mr. J. M. Hutchinson. The specimens exhibited included six "globulars"—to use Mr. McCook's term in regard to the American species, *Myrmecocystus hortus-deorum*—all with the abdomen enormously distended with nectar; but other examples presented to the South-African Museum by Mr. Hutchinson comprised various individuals exhibiting different gradations of distention, thus indicating that the condition of absolute repletion is arrived at gradually, and may possibly be reached by some few only of those individuals who feed, or are fed, up for the purpose. Certainly, in the nests examined by Mr. Hutchinson, in Natal, the number of "globulars" was very small in proportion to the population of ordinary workers; and it is somewhat difficult to understand of what particular value as a food reserve so very small a quantity of nectar so exceptionally stored can be. Mr. Trimen added that while the occurrence of "Honey" Ants in Southern North America, South Australia, and he believed also in India, was well known, the Natal species now exhibited was the first African one that had come under his notice. In the course of the discussion which followed Professor Riley said that the American species referred to by Mr. Trimen was common from Colorado to Mexico, and that the honey-bearing ants were often very numerous in its communities; he further pointed out the fact that many common species of ants have the power of distending the abdomen with honey, and that this was very evident in certain species of *Formica*. Dr. Sharp exhibited a series of *Coleoptera*, to illustrate variation in size. This series consisted of individuals that had been kindly lent to him by M. René Oberthür, by the Hon. Walter Rothschild, by Messrs. Godman and Salvin, by Mr. Jacoby and by Mr. Blandford. He considered this series and the communications he has received from the specialists to whom he has made applications justify him in saying that great variation in size of the individual or of some of its parts is very rare in *Coleoptera*, and is exhibited most conspicuously by those species in which the males possess unusual structures, the use of which is unknown. Mr. Kirkaldy exhibited specimens of *Cymatia coleoptrata*, Fab., from Morden, Surrey, which had not before been recorded from the London district, and also varieties of *Notonecta glauca*, Fab. Herr Brunner von Wattenwyl made a communication informing the Society that a most unfortunate error had crept into the table of genera in his Monograph of *Pseudophyllides*; on page 9 line 1, and on page 13 line 37, instead of "mesonotum" should be read "mesosternum."—W. W. Fowler, *Hon. Sec.*

AN IMAGO OF *TORTRIX PICEANA*, L., WITH A LARVAL HEAD.

BY C. G. BARRETT, F.E.S.

I have before me the most curious form of monstrosity which has at any time come under my personal notice, one of which, also, there are not many records—a winged moth with the larval head. It is a specimen of the male of *Tortrix piceana*, L. (still a scarce moth with us), and its head, which bears no resemblance to the normal head of a moth, is shaped very much like that of the larva, yet has, in a greater degree, the character of that of the curious apterous, apodous females of the genus *Psyche*. It is smooth, shining, horny, rather flattened, with minute points of larval antennæ pointing downward from below the eyelobes. The maxillæ are formed and slightly crossed at the tips, and the lips clearly indicated, yet all soldered together in one firm hard mask, and immoveable. I have tried with a fine instrument to move the maxillæ but with no success, except that of showing them to be solid and fixed; and so far as can be perceived there is no mouth opening of any kind. The head is set well forward on a distinct neck, and moveable at the will of the insect, to some small extent from side to side, yet not as though of much real use, but aimlessly and with a tendency toward the right side. I am satisfied that it has in some degree the faculty of sight, since upon the box in which it had travelled being opened it was extremely lively and eager to fly; so eager to escape, in fact, that fear of losing it prevented me from experimenting much on its power of directing its flight. Probably this was not great, since the captor tells me that it was found on the ground, having been disturbed from under a fir cone. For a male of this strong and lively *Tortrix*, so fond of the higher branches of the fir trees, this indicated some degree of disablement, yet, with the exception of the head, it is in ordinary and perfect condition.

The moth was secured in a fir wood in Surrey by my friend Mr. A. Dennis, who promptly packed it up, alive and unpinned, and forwarded it to me. For this, and particularly for the opportunity of seeing it alive, I am greatly indebted to him.

Nunhead: June 24th, 1895.

[A List of recorded cases of this class of monstrosity, with generalizations thereon, was given by the late Dr. Hagen in a paper, entitled, "Schmetterlinge mit Raupenkopf und ähnliche Missbildungen," published in the *Stettiner Entomol. Zeitung* for 1872, pp. 388-402. He enumerated 16 instances, including two Beetles and a *Syrphus*. Some additional instances were noted by the late Prof. Westwood in a paper "On some unusual monstrous insects," *Trans. Ent. Soc. Lond.*, 1879, pp. 221-228, pl. vii. I think a few further records have been made since then.—B. McLACHLAN].

AN EPIDEMIC AMONGST *MELANOSTOMA SCALARE*, F., CAUSED
BY A FUNGUS.

BY RALPH C. BRADLEY.

Whilst collecting in Blackroot Bog, Sutton, on June 16th I came across an extraordinary phenomenon. For a space of about a dozen square yards the flowering stems of a grass (apparently *Glyceria fluitans*) were covered with a large number of dead *Melanostoma scalare*, F. (*Syrphidæ*), whose bodies were very much distended by a fungoid growth, similar to that seen on the house fly in the autumn. Some stems bore thirty to forty specimens, and fresh victims were constantly being added, about 90 per cent. of the whole being females.

Two days later, paying a second visit, I found the same process going on, and also two flowering stems of dock covered with the dead bodies in a similar manner.

It seems improbable that sucking the juices of the flowers could produce this fungoid condition, but certainly the flies were to be found only on the flowering parts of the stems, and not on any leaves or herbage.

Why *M. scalare* should be the only species attracted to the stems and attacked in this manner is very curious, as swarms of other insects were flying about, but did not seem to be tempted to join them in the least. Perhaps some other entomologists have met with a similar experience, and can throw some light upon the matter.

Sutton Coldfield:

June, 1895.

[With this communication Mr. Bradley obligingly forwarded a supply of panicles of the grass crowded with the dead bodies of the fly, and presenting a most singular appearance. Some of the flies have been examined by Mr. G. Massee, F.L.S., of Kew, and he identifies the fungus as *Empusa conglomerata*, Thaxter, a rare species in North America and the Continent of Europe, and never before observed in Britain. It is noticed as chiefly attacking larvæ and imagos of *Typhlodæ*. Possibly the germs of the disease may have been acquired by the larvæ of the *Melanostoma* in the first instance: but how? I would be inclined to doubt any direct connection between the grass and the disease; but the flowers of *Glyceria* are well known to be very attractive to insects, and the fungus may have developed very rapidly when the flies were feasting.—B. McLACHLAN].

DISEASE OF THE EYE, CAUSED BY THE PENETRATION OF CATERPILLAR HAIRS.*

BY J. B. LAWFORD, F.R.C.S., Eng.,

(OPHTHALMIC SURGEON TO ST. THOMAS'S HOSPITAL).

This disease, to which the name "*Ophthalmia nodosa*" has been given by Professor Sæmisch, of Bonn, is extremely uncommon, and the case, which forms the text of my paper, is, I believe, the first instance recorded in this country; it is, however, improbable that it is the first which has occurred.

My patient was a lad of sixteen, who was struck in the eye by a caterpillar thrown by a companion. This happened in the month of September, and the caterpillar was determined to be the larva of *Bombyx rubi*.

The previously reported cases are to be found in German medical literature, and all (eight in number) occurred in Germany; the first having been published in 1883. A few additional but unpublished cases have been referred to by some of the German writers.

In all the instances in which it was possible to determine the kind of caterpillar, the fox-moth larva (*Bombyx rubi*), or that of the pine-moth (*Bombyx pini*), was the active etiological factor; in nearly every instance the caterpillar had been thrown, in jest, at the patient by a companion.

The disease excited by the penetration of these hairs into the delicate tissues of the eye is very grave, and in several instances has resulted in serious and permanent damage to sight. It is also very intractable, and runs a prolonged course; in no single case have the symptoms entirely disappeared in less than six months from the date of onset. In all the patients only one eye has suffered, but in one unfortunate man the fellow eye was blind from other causes. The disease has begun in August, September, or October in every case except one; in this it was said to have arisen in June; and in this case the larva of *Bombyx pini* was the caterpillar in question.

Two German writers have described a much slighter form of inflammation of the eye, of which they have seen cases, caused by irritation by the hairs of the larva of *Cnethocampa processionea*.

I have placed under the microscope two hairs removed from the eye of my patient; they are both yellow-coloured, with a very sharp point at the distal end, and a fractured surface at the proximal end.

In this connection Leydig's investigations, published in Müller's

* Abstract of a paper read before the Ophthalmological Society of the United Kingdom, on June 13th, 1895, at 11, Chandos Street, London, W.

Archiv, 1855, "Zum feineren Bau der Arthropoden," are of interest and importance, and I am glad to be able to show a woodcut from his paper, illustrating the skin and skin glands and hairs of the *Bombyx rubi*.

After careful consideration of the case under my care, and those previously published, I am of opinion that the symptoms and course of the disease can only be adequately explained by assuming that they are due to the action of a specific poison contained in the hairs, or possibly resulting from their disintegration in the tissues. The nature of this poison is quite unknown.

[Mr. Lawford has kindly furnished me with the foregoing notes; it seems somewhat strange that the hairs of *Cnethocampa processionea* should have a less effect than those of *Bombyx rubi*; the explanation, however, is apparently to be found in the fact that the eye was struck violently by the larva of *B. rubi*; the injury done by the hairs appears to be in part mechanical, and in part due to poison. Lord Walsingham, who has carefully examined the hairs of *C. processionea*, says that besides the longer hairs there are tufts of smaller ones, each of which is furnished at the side with projections, and these work into the skin by the base, not the tips, with an action like a corkscrew.—W. W. F.]

ON EXCEPTIONAL OVIPOSITION IN *PYRRHOSOMA MINIMUM*, HARRIS.

BY ROBERT McLACHLAN, F.R.S., &c.

In this Magazine, vol. xxi, p. 211 (February, 1885), I gave a note on females of *Agrion mercuriale*, found during an excursion in Savoy in July, 1884, having their abdomens incrustated with white mud through ovipositing in places where the water was nearly dried up. According to an observation made recently, this habit obtains in other species of *Agrionina*. Early in June, 1868, I found *A. mercuriale* near Lyndhurst in the New Forest, but have never since seen it alive in this country. Being in the Forest last week I was prompted to try again for the insect; the precise locality of my captures 27 years ago was no doubt re-discovered, but the *Agrion* was not to be seen. *Pyrrhosoma minimum* was, however, abundant in a deep drain or ditch in which the water was nearly dried up. Some of the females having a peculiar appearance I caught them, and found the peculiarity to be caused by precisely the same conditions observed in the *Agrion* in Savoy in 1884, the abdomens being incrustated with dry whitish mud from the tip up to the 1st or 2nd segment. In one individual nearly the whole body (including the wings) showed traces of mud, indicating that she had probably descended entirely beneath the

surface for oviposition. In several cases these incrustated females had attendant males attached *per col.*, but perfectly unsoiled. The mud was a white marly clay, and very deep, as I found to my cost. That the habit is not general with this very common species is certain, for I had never observed it before. It is a provision of Nature in exceptional localities and weather; even although the surface water be entirely dried up, and the surface of the mud itself be partially baked, there remains sufficient moisture beneath to maintain the vitality of the eggs (and probably of young larvæ also) until the recurrence of rain turns the dry ditch into the normal watercourse.

Lewisham, London :
June 6th, 1895.

OCHTHEBIUS LEJOLISI, MULS. & REY, AN ADDITION TO THE
BRITISH LIST.

BY W. H. BENNETT.

While collecting near Ilfracombe in June I took an *Ochthebius* which was quite new to me; it proved to be *Lejolisi*, Muls. & Rey, and I have much pleasure in recording it as an addition to our list. It may be at once known from all our other species by having the whole of the lateral margin of the elytra toothed, saw-like. The body is narrow, with the surface of the elytra rasp-like. The thorax is rugose, with rather indistinct impressions, and a faintly marked channel on the median line. The penultimate joint of the maxillary palpi is strongly inflated. Bedel (Faune Col. du Bassin de la Seine, i, p. 317) says of its habitat on the continent, "In small pools of salt water on rocks on the coast, rare." It has apparently only been recorded from Cherbourg, the coast of Provence, and (doubtfully) Algeria.

I found the insect in some numbers in small pools of very stale and putrid salt water, just above the usual high-water mark at the base of the cliffs, but evidently not beyond the reach of spring tides, for when I visited the locality the day before I left the district the pools had been refilled with fresh sea water. I noticed on this occasion the *Ochthebii* were much more active than they were on previous visits. They appeared to be confined to a very limited area, and although I searched carefully at a great many points on the coast I never saw a specimen at any other place. Mr. Champion has very kindly compared the insect with a specimen from Cherbourg, and tells me there is no doubt about the determination.

15, Wellington Place, Hastings :
July 11th, 1895.

COLEOPTERA AT STORNOWAY, N.B.

BY JAMES J. WALKER, R.N., F.L.S.

A flying visit to Stornoway in H.M.S. "Northampton," from May 23rd to 27th, produced some interesting *Coleoptera*; and as very few insects of this Order have been recorded from the Outer Hebrides, I give the results of my collecting in this remote locality *in extenso*.

Stornoway lies on the eastern side of the Island of Lewis, on a fine harbour, behind which the land rises, gradually in some parts, and more abruptly in others, into an extensive tract of peaty moorland and scanty pasture, with an average elevation of 400 to 500 feet above the sea-level. Rugged rocks and boulders of grey gneiss protrude through the heather in every direction, and small lakes of clear water, abounding in brown trout, are very frequently met with. Except quite close to the town itself (which at the time of my visit presented a scene of great bustle and animation, it being then the height of the herring season) there is little or no cultivation of any sort, and one may wander for hours over the moorland without meeting with a human being, or anything living except a few sheep and red deer. The general bare and cheerless aspect of the country is relieved in part by the beautiful park or demesne surrounding Lewis Castle, on the side of the harbour opposite the town. Here well grown trees of Scotch fir, beech, oak, alder, sycamore, and hazel show that the climate of the Hebrides is not, as is often supposed, unfavourable to the growth of arboreal vegetation. The shady paths in this demesne afforded very fair sweeping, and a sandy salt-marsh, about a mile to the north of the town, gave an agreeable variety to the general collecting; one rather remarkable feature of which was the great scarcity, or almost entire absence, of the *Hydradephaga* in so likely-looking a locality for the group. Small ponds, running streams, clear-water lochs, and peaty pools on the moorland, all were tried with the water-net, with the result of solitary specimens of *Agabus Solieri* and *Hydroporus obscurus*, besides the numerous *Gyrini*, all apparently of one species (*opacus*), gyrating on their surface. It is also rather curious, I think, that not a single species of the genus *Apion* was met with.

No butterflies were observed during my visit, although the weather was generally fine; *Rumia crataegata* was found in the demesne, and one or two pupæ of *Hepialus humuli* under stones, near the town. On the moorland, *Fidonia atomaria* and *Melanippe hastata* occurred in great profusion; the latter in superb condition and beautifully variable, flying actively in the sunshine in wet places among *Myrica gale*.

The following *Coleoptera* were met with, viz. : *Carabus catenulatus*, not rare, but quite normal in colour and size ; *C. clathratus*, on the moorland, scarce, one specimen quite black. *Notiophilus biguttatus*, *Loricera pilicornis*, *Clivina fossor*, *Nebria brevicollis*, not rare under stones, the last usually rather small. *Harpalus latus*, not common. *Dichirotrichus pubescens*, abundant in the salt-marsh, dark and light forms about equally common, with apparently very few intermediates. *Pterostichus vulgaris*, *nigrita*, and *strenuus*, generally common. *Abax striola*, not rare, under stones in the demesne and elsewhere. *Amara spinipes*, rather common, usually below the size of southern specimens ; *A. plebeia*, scarce, under stones. *Calathus cisteloides*, abundant. *Anchomenus albipes*, plentiful in wet places ; *A. parumpunctatus*, a handsome dark form occurred rarely on the moorland. *Bembidium bruxellense*, on banks of streams ; *Trechus minutus* and *Patrobis excavatus*, under stones. *Hydroporus obscurus* and *Agabus Solieri*, both singly, in a peaty pool on the moor ; *Gyrinus opacus*, common. *Sphæridium scarabæoides*, abundant in sheep-dung, with two or three species of *Cercyon*. *Aleochara brevipennis* and *nitida*, *Tachinus rufipes*, *Quedius tristis* and *molochinus*. *Staphylinus erythropterus*, in dead sheep and under stones. *Ocypus olens*, common ; *O. cupreus*, scarce. *Philonthus splendens*, one fine example in a dead sheep ; *P. laminatus* and *æneus*, under stones ; *P. decorus*, rather common under stones, &c., in the demesne and elsewhere ; *P. marginatus* and *cruentatus*, not uncommon in sheep-dung, &c. *Lathrobium elongatum* and *brunnipes*, and *Xantholinus linearis*, under stones. *Oxytelus rugosus*, in dung. *Silpha opaca*, by sweeping and under stones ; *S. rugosa*, in carrion. *Cryptophagus soanicus*, *Meligethes æneus* and *picipes*, and *Byrrhus pilula*, by sweeping. *Aphodius finetarius* and *ater*, abundant in sheep-dung near the town ; *A. lapponum*, *fætidus*, and *putridus*, not rare in sheep- and deer-dung on the moorland ; *A. contaminatus* and *rufipes*, common. *A. depressus* was the most abundant of its genus, and the type-form with red elytra,* usually regarded as rare, was here as common as the more usual black form. *Geotrupes stercorarius*, under dung. *Cryptohypnus riparius*, common under stones from the beach upwards. *Athöus hæmorrhoidalis*, common, and *Dolopius marginatus*, by sweeping. *Corymbites cupreus*, under stones, not rarely, and chiefly ♀'s ; one ♂ I found alive in the jaws of a *Carabus clathratus* ; the var. *æruginosus* was scarce ; *C. quercûs*, common by sweeping in the demesne. *Helodes marginata*, rare by sweeping on

* As long as my stock holds out, I shall be happy to supply any Coleopterist with a specimen of this form.—J. J. W.

banks of streams. *Telephorus Darwinianus*; a very dark form, some of the specimens being of a leaden-black colour, occurred rather commonly under stones on the salt-marsh. *T. limbatus*, common by sweeping. *Chrysomela staphylæa*, var. *Sharpi*, Fowl.; this very curious form was not scarce under stones on the salt-marsh, and must at times be very common, as the grey larvæ, which apparently feed on the leaves of sea-thrift (*Statice armeria*), were to be found by hundreds with the perfect beetle; the normal type of the insect was not met with. *Otiorrhynchus blandus*, common under stones on the tops of turf-walls, and extending from the beach to the highest moorland; *O. sulcatus*, not rare under stones, and *O. picipes*, abundant. *Strophosomus coryli*, by beating broom. *Liosomus ovatulus* and *Rhinoncus pericarpus*, by sweeping in damp places. *Orchestes fagi*, sparingly, under beech trees.

H.M.S. "Northampton,"

Campbeltown, N.B.:

July 8th, 1895.

POLYPORUS BETULINUS AS A MATERIAL FOR MOUNTING SMALL INSECTS.

BY WALTER F. H. BLANDFORD, M.A., F.Z.S.

The method of mounting small insects set on fine pins, which is known as staging, has been adopted by most of our leading systematic entomologists. Briefly, it consists in fixing the pin passed through the specimen into a block of soft substance mounted at some height up a stout pin, by means of which the staged insect is pinned in the collection. In this way very fine and short pins can be employed to transfix the insects; there is no risk of bending them by forcing them into the cork of the drawer, or by subsequent handling; the insects can be brought as near as desired to the glass and the necessary labels can be put on the stouter pins.

Staging has been but little adopted by collectors of British insects, who have less often to remove specimens from their collections for comparison, and who are sometimes remiss about labelling their captures.

Its neglect is perhaps due to the want of a satisfactory material from which to make stages. Pith (usually that of the Jerusalem artichoke), cork, pasteboard and felt have all been tried.

At a recent Meeting of the Entomological Society of London I exhibited a substance for staging which appears to be entirely satisfactory. My attention was called to it by examining the blocks on which were mounted some *Coleophora laricella* sent out by Herr Frick

of Prague. In answer to an enquiry, Herr Fríc told me that his curiosity had also been aroused, and that he had vainly tried to learn their nature from the collector, an old man, who, from his silence, was probably dead. It was, therefore, necessary to make out the nature of the substance from examination of the blocks, and this investigation proved successful.

The stages were made of the felted mass of a fungus-fructification (strictly, the hymenophore of *Polyporus betulinus*). This material is as nearly as possible perfect; when of good quality it is pure white, dense and even in texture, without holes, flaws or hard places. It can be cut into any desired size, and when smoothly cut has a surface almost resembling that of fine plaster. It admits the very finest pins without turning the points, and it holds the pins firmly, which pith will not do. If fresh, or slightly moistened by a sojourn in the relaxing box, it is tough and cuts smoothly, when quite dry it is harder to cut and is slightly friable, though not materially so. When wetted it becomes soft and spongy, and a pin fixed in it can be easily released by applying a brushful of water round the insertion.

As to its lasting qualities, pieces used in Zeller's collection, which must be many years old, show no signs of deterioration, nor have they corroded the pins in any way. It has been suggested that the fungus may encourage the growth of mites or mould. This there is no reason to suspect; though it absorbs moisture and will grow mouldy if kept damp, it does so only under conditions in which the insects themselves would be injured.

As it is not obtainable everywhere, and special apparatus and some skill are required to cut it uniformly and without waste, Messrs. Watkins and Doncaster have undertaken to supply it. The difficulty of cutting has been fairly well surmounted, and the material will be sent out in strips which can be divided transversely into the required lengths with a very sharp knife (such as an old table knife well ground). An ounce of strips will mount from 700 to 1500 or more specimens, according to the size of stage required. They should be handled as little as possible, as they easily show finger marks or forceps dents. The latter will come out if the strip is placed for an hour or two in a relaxing box, after which it cuts better; but it must not be allowed to touch the moist surface, or it will be spoiled.

A drawerful of small *Lepidoptera* carefully staged on this material looks extremely neat; that the specimens are more secure against injury, and that the value of the collection is thereby increased, can hardly be disputed.

It may be interesting to note that the fungus affords an excellent surface on which to print, so that it is perhaps possible to combine label and stage in one.

48, Wimpole Street, W. :

June, 1895.

ON FIVE NEW SPECIES OF *HISTERIDÆ* AND NOTES ON TWO OTHERS.

BY G. LEWIS, F.L.S.

Monsieur René Oberthür is now engaged in preparing for publication a Catalogue of the *Coleoptera* of Madagascar, and I hope the notices of two new species given here will reach Rennes in time for the names and references to be included in it.

LIST OF SPECIES.

HOLOLEPTA *ARCUATA*.

HISTER *NIPONICUS*.

NOTOLISTER *SULCICOLLIS*.

narus, Mars., 1873.

„ *5-STRIATUS*.

TRIBALLUS *PLURISTRIATUS*.

HISTER *QUINQUESTRIATUS*, Motsch.

„ *JAPANUS*, Motsch.

succicola, Thoms.

HOLOLEPTA *ARCUATA*, *sp. n.*

Oblongo-ovalis, leviter convexa, nigra, nitida; fronte bistriata; elytris striis subhumerali et prima integris, 2—3 brevibus; propygidium circum sat parce punctato; pygidio dense punctato; prosterno antice utrinque bistriato.
Long., 8 mm.

Oblong-oval, slightly convex above, black, shining; the head with two short bent striæ near the base of the mandibles, not impressed; the thorax marginal striæ very fine, lateral striæ also fine, both terminating behind the eye, with a band of punctures more or less confluent, band broadest at and near the anterior angle, narrowest behind, no median line or antescutellar mark; the elytra, subhumeral striæ wide in the middle but extending clearly to the base, 1 dorsal complete but rather fine in the middle, 2 length about one-fifth of the elytra with a short appendage, 3 very short; the propygidium with a lateral margin of scattered punctures, disc and basal margin smooth, apical margin impressed; the pygidium densely punctate; the prosternum triangular and wide at the base, anterior part with two striæ on each side, outer one short and inconspicuous, inner one longer, very distinct and arched, but does not quite meet the opposite one in front; the legs, anterior tibiæ 4-dentate.

The trivial name is suggested by the striæ on the prosternum.

Hab. Matadi, Congo River.

NOTE.—The discovery of additional species of *Notolister* makes

it necessary to state that the short lateral striæ on the head, the thoracic lateral stria invisible above, and the multistriate epipleuræ, may be considered generic characters, as all the known species possess them.

NOTOLISTER SULCICOLLIS, sp. n.

Breviter ovalis, parum convexus, niger, nitidus; thorace lateribus profunde sulcato; elytris striis 1—3 integris, 4—5 apicalibus, suturali antice obsoleta; propygidio grosse et dense punctato; prosterno inter striam lævi.

Long., 6½ mm.

Shortly oval, somewhat convex, black, shining; the head microscopically punctulate, lateral striæ deep, not reaching beyond the eye, frontal area smooth but uneven, impressed in the middle; the thorax transverse, lateral sulcus broader and deeper than that of *N. Edwardsi*, Mars., and terminating abruptly at either end, lateral marginal stria not visible above, but continued behind the head, where, however, it slightly leaves the edge, microscopically punctured, with a small antescutellar impression; the elytra striæ 1—3 complete, 4—5 apical and evanescent, sutural apical almost punctiform on the dorsum, evanescent towards the base, posterior margin narrowly and strigosely punctate, the strigose points merge into larger round punctures, which encroach more or less on the interstices of the first, second, third and fourth striæ, similar punctures are also seen more or less distinctly along the first and sutural striæ; the propygidium is wholly covered with large round punctures; the pygidium less closely and much less coarsely punctate; the prosternum, keel smooth, lateral striæ are shortened at the base, and gradually converge and join anteriorly; the mesosternum, marginal stria fine, anterior edge widely but very feebly emarginate; the legs, anterior tibiæ with four distinct teeth equidistant from each other, and three others smaller near the base, femora smooth.

Hab. Nosibè Island, Madagascar.

NOTOLISTER 5-STRIATUS, sp. n.

Breviter ovalis, parum convexus, niger, nitidus; thorace lateribus grosse punctato; elytris striis 1—2 integris, 3 abbreviata, 4—5 nullis, suturali basi abbreviata; propygidio pygidioque dense punctatis; prosterno punctato.

Long., 4 mm.

Shortly oval, little convex above, black, shining; the head punctulate, lateral striæ as in the last species, deep but not passing beyond the eye; the thorax, lateral stria not visible above at the sides, but continuing behind the head close to the edge and crenulate, edges narrowly smooth, with a broad band within the smooth margin of large punctures, a few of which of lesser size extend behind the head, without any lateral sulcus, scutellar impression shallow; the elytra, striæ 1—2 complete, rather wide and irregularly punctured, 3 similar to the second but only extending to the middle of the dorsum, 4—5 wanting, sutural shortened before the base, about one-third of the elytral area is punctate, punctures cover the apical portion and extend towards the base along the interstices of the first, second and third striæ, epipleuræ 5-striate, apical margin somewhat strigose; the propygidium and pygidium densely punctate, punctures of the first, especially along the base, are larger than

those of the pygidium, the last has a small fovea on each side of the base; the prosternum, keel densely punctate like the pygidium, lateral stria gradually converging from the base; the mesosternum transverse and narrow, nearly straight anteriorly, with a slightly bent, deep, punctate, transverse stria, metasternal suture marked with a line of punctures; the legs, anterior femora on the under-side densely and coarsely punctate, the others smooth, anterior tibiae 6-dentate, teeth near the base small.

The trivial name will call attention to the epipleural striæ.

Hab. Nossibè Island, Madagascar.

HISTER JAPANUS, Motsch., Etud. Ent., p. 13, 1860.

Hister succicola, Thoms., Skand. Col., iv, p. 224, 1862.

Hab. This species is apparently commoner in Siberia than elsewhere, but it is not considered a rare species in Western Europe. In Japan I found it only at low elevations.

HISTER NIPONICUS, *sp. n.*

Suborbicularis, convexiusculus, niger, nitidus; stria frontali vix semicirculari; pronoto stria laterali unica integra; elytris striis subcrenulatis 1—3 integris, 4 abbreviata rudimento aucta, 5—6 in medio abbreviatis; propygidio pygidioque parum dense punctatis; prosterno distincte bistriato.

Long., 3½—4½ mm.

This species is distinct from *H. navus*, Mars, 1854, in being broader, the breadth being especially noticeable in the width of the elytra below the shoulder, in the head being narrower, and the elytral striæ being distinctly crenulate. The prosternal striæ are also much longer and more distinct.

Hab. Japan. Found in all the islands; it is equally common in Yezo as in Kiushiu. Herr Reitter has an example from the Amur region. *Hister navus*, so far as I know, has only been taken in Syria.

HISTER QUINQUESTRIATUS, Motsch., Etud. Ent., p. 13, 1860.

Hister 14-striatus, Mars., Ann. France, 1873.

After comparing a large number of specimens of Motschulsky's species from Siberia and Japan with *Hister 12-striatus*, Schr. (*14-striatus*, Gyll.), from Europe, I have come to the conclusion his species is distinct. The lateral elytral fossa (subhumeral) in *H. 5-striatus*, Motsch., is always deep and long; in twelve examples before me from Europe and North Africa the fossa is absent. The species is larger and the sterna are perceptibly narrower, but above *H. 5-striatus* appears in general outline to be broader than *H. 14-striatus*, as Motschulsky states.

Hab. I found it commonly in all the parts of Japan I visited.

TRIBALLUS PLURISTRIATUS, *sp. n.*

Breviter ovalis, supra parum convexus, niger, nitidus; capite thoraceque undique punctatis; elytris striis 1—4 integris, 5 nulla, suturali utrinque abbreviata; antennis pedibusque obscure rufis. Long., $2\frac{1}{2}$ mm.

Shortly oval, little convex above, black, shining; the head, striate over the eyes, forehead feebly impressed, clearly and evenly not densely punctulate; the thorax wholly and rather more clearly punctured than the head, stria well marked at the sides, wanting in front, at the base on each side of a point before the scutellum are two somewhat oblique shallow impressions; the elytra, striae crenulate, 1—4 complete 5 wanting, sutural discal, surface more or less distinctly punctulate, punctures clearest on the posterior half; the propygidium and pygidium rather more finely punctured than the head; the prosternum smooth, with the lateral striae somewhat divergent both before and behind; the mesosternum, anterior edge feebly and widely arched and immarginate, transverse stria widely bent and conspicuously crenulate; the tibiae are without spines.

The facies of this species is somewhat like that of *Anaglymma circularis*, Mars.; it may be placed next to *T. orphanus*, Lew.

Hab. Java on "Montes Tenggèr," 4000 feet alt.

St. Regulus, Archer's Road, Southampton:

July, 1895.

A PROTEST AGAINST GIVING NAMES TO THE PREPARATORY STAGES OF INSECTS.

BY JOHN HARTLEY DURRANT, F.E.S., MEMB. SOC. ENT. DE FRANCE.

Having recently described a new genus (*ante* pp. 106–109) founded on a species, the imago of which was previously unknown, but which already possessed a name bestowed upon the larval case and its contents, I am prompted to make a protest against the practice (luckily a rare one) of giving names to preparatory stages. When describing a *Depressariad* it would seem unnecessary to study the literature of the *Psychidæ*, and I should certainly have overlooked the fact that I had before me Rogenhofer's *Fumea? limulus* had I not recollected the figure which accompanied his description. Mr. Green bred the insect, and fortunately sent cases with the specimens and also made figures and notes of its habits, without which it would have been impossible to have avoided creating a synonym, which name would have remained to represent a good species in the *Depressariadæ* until, by breeding, the fact had been established that the earlier part of the life-history of this species stood under another name in the *Psychidæ*.

In this instance no harm has been done, for I was able to adopt

Rogenhofer's special name, but surely the difficulties encountered in the synonymy of the imago are sufficiently great without increasing them by giving additional names to preparatory stages, or even to empty leaves formerly tenanted by larvæ. We know so little of the life-history of exotic insects that any addition to our knowledge is most welcome, but it must be demanded in the interests of science that such information shall be unaccompanied by new generic or special names, for it is absolutely impossible to determine whether the insect requires a new name until it has been bred. The time will probably come when the life-histories of all the described species will have been ascertained, and when preparatory stages will be readily identified as belonging to particular Families, or perhaps even to what in that far-off time will take the place of our present conception of genera, but even then it will be unwise to name a larva.

I entirely agree with Mr. McLachlan's views expressed (Ent. Mo. Mag., XXV, 362) when identifying Rogenhofer's case of *Fumea* ? *limulus* with the one he had himself previously described but had not named—"I then knew nothing of the larva that formed them, nor of its habits. And holding the opinion that names should not be applied to cases or larvæ only, left them nameless."

This seems certainly the proper course to adopt when dealing with preparatory stages of sufficient interest to merit description, for Mr. McLachlan (in 1864) regarded the case as that of a *Phryganid*, Rogenhofer referred it to the *Psychidæ*, while the imago proves that it is a *Depressariad*! Can any argument be stronger than this against the unwisdom of naming preparatory stages?

Chambers in the United States has described and named as belonging to the genera *Lithocolletis* and *Nepticula* the larvæ of *Coleoptera* and *Diptera*. Are such names as these to be granted priority over those of carefully described beetles and flies? Surely the rule—"A name may be changed when it implies a false proposition which is likely to propagate important errors," should be extended to meet such cases, and should be rigidly enforced, but should the species require a name it would be better to adopt the larval name for the imago rather than propose a new one.

Hitherto I have been dealing with cases in which names have been given to larvæ, still worse instances are to be found in which the proposer of the name was unacquainted with the insect itself in any stage. An example of this kind is to be found in the history of *Tinagma betulæ*, Stn. (1890), which is antedated by *Heliozela hammoniella*, Sorhagen (1885), described from a mine in a birch leaf.

Sorhagen correctly identified the genus to which the mine belonged, and we are indebted to him for having figured and described it, thus calling attention to the fact that a new species of *Heliozela* = *Tinagma* was to be found mining the birch, but the bestowal of a special name upon an empty mine was an excess of energy with which science could have very well dispensed, and it seems to me that this proceeding was little better than the reprehensible practice of giving names to figures in the absence of the insect; the differences noticed in such figures *may* be due to artistic imagination. Too great impatience is the cause of such procedure, there are sufficient new species in our collections awaiting description without devoting our time to hypothetical ones. The geologist would be justified in naming a mine in a fossil leaf or the cast of an insect, because the odds are very great against the insect itself being preserved and eventually coming to light, but no such justification can be found for the student of existing forms who gives a name to a hypothetical insect whose existence is only indicated by larval traces in vegetable structure, or by a figure not agreeing with any known form.

The authors of the British Association Rules did not apparently contemplate the possibility of such names, and as there are apparently no rules for guidance, I would propose the following, which I hope will be accepted in lieu of better:—

1.—Special names should not be given to the *indications* of new species, whether fore-shadowed by traces in or on vegetable structure, or by the existence of figures not agreeing with known forms.

(a). Names given in such cases to be treated as *MS.*, their adoption advocated when the species is *discovered and described*, but the name to date from the description of the species itself, not from that of the named *indication* of its probable existence.

Example—*Antispila Rivillei*, Stn., should date from 1872 (Stn., Ent. Mo. Mag., IX, 54–6), *not* from Trans. Ent. Soc. (n. s.), III, 89 (1855), *nor* from Tin. S. Eur., 309–19 (1869), because in these references Stainton was unacquainted with the insect, and had merely named Godeheu de Riville's figures, the argument being that Entomology is the study of Insects not of typographical records. The earlier references should, however, be quoted in brackets.

2.—Special names should not be given to the preparatory stages of insects.

(a). Such names should be adopted if known when describing the imago, and the authority for the larval name cited in brackets, but the name itself to date from the description of the imago, the argument being that the describer of the larva could not possibly know that the species had not already been described from the imago.

- (b). When a larva has been named and the imago subsequently described under a different name, priority to be given to the description of the imago, the larval name being treated as MS. and cited in brackets, on the grounds that the description of the larva not being applicable to the imago, it was impossible for the describer of the imago to know that the species had been already named.

Merton Hall, Thetford :

June 4th, 1895.

THE NEW FOREST IN MAY.

BY CLAUDE MORLEY, F.E.S., AND ERNEST ELLIOTT, F.I.Inst.

No article in the whole of last year's Ent. Mo. Mag. was, probably, more interesting to Coleopterists than that upon their month's collecting in the New Forest by Mr. Champion and Dr. Sharp in the October number. So interesting indeed was it to us that we then and there fixed upon May 16th as a good date to begin a fortnight's entomologizing over the same ground. The first week was very dull and cool throughout England, and particularly unproductive at Brockenhurst; but from the 24th to the 30th, when we returned to town, the sun shone radiantly, and things were abroad in numbers.

Taking the *Coleoptera* in something like their proper order, the only *Geodephaga* at all worth mentioning was *Acupalpus exiguus*, var. *luridus*, which was swept from a swamp on the 28th. The *Hydradephaga* were few in number and common in quality, such as *Hydroporus memnonius*, which swarmed with *Agabus chalconotus*, &c. *Gymnusa brevicollis* is the first good insect in the list; a single specimen was swept with the *Acupalpus*. Nothing nearer *Velleius* than *Quedius mesomelinus* occurred on sugar, and a second (var. *fageti*?) was beaten from hawthorn blossom. *Leistostrophus murinus* was common with six species of *Philonthi* in a dead foal. The *Steni* were scarce, and we only saw *pallitarsis*, *nitidiusculus*, *pallipes*, and *bifoveolatus*. *Anisotoma calcarata* was not rare on flowers of *Cardamine pratensis*. *Necrodes littoralis* was abundant in a dead foal, twenty-seven specimens were bottled one after another on the 30th. *Silpha 4-punctata* was very scarce, only two or three specimens, beaten from oak, being taken. One specimen of *Ips 4-guttata* turned up under beech bark. From the dead stump of an oak on the 29th, a single *Thymalus limbatus* was taken. *Aphodii* were very abundant in horse and cow dung, and we took *erraticus*, *hemorrhoidalis*, *depressus*, *ater*, and many generally common species. *Geotrupes Typhaeus* was met with during the first day or two, and then disappeared entirely, the most diligent search only showing one dead ♂. The best insect we took, and the one for which the excursion was principally made, was *Anihazia nitidula*, three specimens only turned up however, all beaten from hawthorn blossom, less of which throughout the country there has seldom been. We entirely concur with our predecessors' opinion that this species is rare, and decidedly local—but how beautiful is it, shining as it does like an emerald in the setting of the white-lined

umbrella! *Elater balteatus*, *Sericosomus brunneus*, *Corymbites quercus*, and metallicus also visited the umbrella, and were rare; *C. bipustulatus* was not common, being attracted by sugar, but *C. holosericeus* was exceedingly abundant on unblossoming hawthorn and other bushes.

The *Malacodermata* were well represented: *Cyphon padi* and *Telephorus hamorrhoidalis*, which do not occur at Ipswich, being common; *Podabrus alpinus* was hardly out, but *Necrobia violacea* and *rustipes* were taken not rarely, together with *Dasytes plumbeo-niger*. The only two species of *Teredilia* seen are certainly worth recording: *Anobium denticolle*, two specimens beaten from the decaying stump of an oak, and a minute search produced nothing more than an elytron of *Elater lythropterus*, and *Priobium castaneum*, of which one specimen was also swept from a damp ditch just before dusk. More by chance than otherwise we took upwards of a dozen examples of *Callidium violaceum* from a paling of pine logs in our garden, which was, in places, riddled with their borings, and had we prolonged our stay we should probably have taken a very long series each, as they commenced to come out very fast on the 30th. *Anoplodera sexguttata* swept from king-cups, *Saperda populnea*, and *Grammoptera prausta* were met with sparingly, but *G. analis* was nowhere to be found: it apparently makes its *début* later than its relations. Mr. Dale, whom we had the pleasure of meeting, took *Strangalia nigra*. Many species of *Phytophaga* were abroad, but somewhat scarce; *Donacia sagittaria*, *Cryptocephalus aureolus* and *fulcratus*, *Melasoma populi*, *Phyllotreta nodicornis*, and *Ochrosia salicariae* being the only at all uncommon ones taken. *Melandrya caraboides* occurred with the *Callidium*; while *Ischnomera carulea* put in an appearance on hawthorn blossom. *Rhynchites pubescens* was not rare on oak, and *R. aeneovirens* occurred on hawthorn bushes. Sweeping long grass at dusk was productive of a number of *Rhynchophora*:—*Tychius junceus*, *Mecinus pyraister*, *Ceuthorhynchus cochleariae*, *Rhinoncus pericarpus*, *Barynotus obscurus*.

The quality of the *Lepidoptera* may be deduced from the fact that *Coremia designata* alone went home with us. We have never seen it, nor *Pararge Ageria*, which was common, in Suffolk. *Micropteryx calithella* swarmed on buttercups, but sugar was unproductive.

Amongst the *Tenthredinidae*, *Blennocampa cinereipes* and *fuliginosa*, and *Selandria morio* were swept commonly in marshy places, while *Nematus lucidus*, *Cladius viminalis*, *Hoplocampa cratægi*, and *Emphytus calceatus* were beaten. *Selandria serva* and *Athalia rosæ* were the commonest of the family, and abounded everywhere. *Salix fuscus*, with one ♀ of *Pompilus viaticus*, and of *S. spissus* represented the *Fossoræ*. The *Heterogyna* were a blank, excepting a single *Myrmica lobicornis* in the house on the 16th. *Andrena labialis* was common on hawthorn flowers; *A. chrysoceles*, ♀, *A. nitida*, ♀, and *A. rosæ*, var. *Trimmerana* were also boxed.

The scarcity of *Diptera* was entirely alleviated by the capture of two fine specimens of *Microdon mutabilis*, swept in a truly "dismal swamp," with the mud far above one's boots! One each of *Myopa buccata* and ? *testacea*, on hawthorn blossom, were taken with several commoner species, among which were *Pipizella virens*, *Psilopus platypterus*, and the curious "New Forest Fly," *Hippobosca equina*.

The *Neuroptera* were fairly well represented for the time of year, many of the earlier species being met with. *Rhaphidia notata* and *maculicollis* began to emerge

on May 25th; we beat them from hawthorn blossom and from various trees. *Plectrocnemia conspersa* was fairly abundant with several of the common *Limnophili* about ponds.

Heteroptera, like the *Diptera*, were very scarce, but amongst them, too, one good species was taken; this was *Metatropis rufescens*: it was swept at sundown in a swampy wood. *Eurygaster maurus* was also swept from a swamp, as were *Cymus glandicolor* and *Miris calcaratus*. *Harpocera thoracica*, *Cyllocoris flavonotatus*, with other common things, were beaten, and *Gerris paludum* and *gibbifera* noted on ponds, the former by no means commonly.

Ipswich: June 15th, 1895.

Ten days in the New Forest.—I went down on May 31st to Brockenhurst for a few days' collecting. The first day being wet I spent at Lymington in the Salterns, where I obtained *Bryaxis Waterhousei*, *Polydrusus chrysomela*, *Aëpus marinus* and *Robinii*. In the Forest on the whole I was most successful, taking such very rare things as *Anthaxia nitidula*, *Colydium elongatum*, and *Plegaderus dissectus*.

Among the other things I took which are worth recording were—*Carabus arvensis* and *nitens*, *Lebia chlorocephala*, *Calosoma inquisitor*, *Agathidium nigripennis* and *nigrinum*, *Xyletinus ater*, *Abdera bifasciata*, *Litargus bifasciatus*, *Conopalpus testaceus*, *Silpha 4-punctata* and *thoracica*, *Brachytarsus varius*, *Melasis buprestoides*, *Athous vittatus*, *Aphodius depressus*, *Orochesia undulata*, *Corymbites bipustulatus*, *Ips quadriguttata*, *Cryptarcha strigata* and *imperialis*, *Epuraea decemguttata*, *Soronia punctatissima*, *Thymalus limbatus*, *Homalota cinnamomea*, *Tachinus proximus*, *Mordellistena abdominalis*, *Elatér lrythropterus*, *Ischnomera sanguinicollis* and *cærulea*, *Pyrochroa coccinea*, *Trox sabulosus*, *Tillus elongatus* (males and females), *Tomoxia biguttata*, *Paromalus flavicornis*, *Omosita depressa*, *Dacne humeralis*, *Cistela ceramboides*, *Cytillus varius*, *Phlaotrya Stephensii*.

The following *Longicornia* occurred:—*Callidium violaceum* and *variabile*, *Clytus arietis*, *Liopus nebulosus*, *Rhagium inquisitor* and *bifasciatum*, *Toxotus meridianus*, *Strangalia melanura* and *nigra*, *Leptura scutellata*, *Anoplodera sexguttata*, *Grammoptera tabacicolor*, *analis*, *rusticornis*, and *ustulata*, *Pogonocherus dentatus* and *hispidus*, *Mesosa nubila*. All these I took myself, except the last two, which were found by Mr. Bouskell, of Leicester. I was also fortunate enough to take a specimen of *Cicadetta montana*.—HORACE DONISTHORPE, 73, West Cromwell Road, South Kensington: June 19th, 1895.

Ceuthorrhynchidius Crotchii, Ch. Bris.—The following extracts from a note communicated by M. Louis Bedel, of Paris, are of interest to British Coleopterists: "I have recently examined the types of *C. Crotchii*, Ch. Bris., described from England only, from specimens communicated by Crotch, and find that they are from Madeira! *C. Crotchii*, moreover, is not different from *C. nigroterminatus*, Woll., a Madeiran insect; the first mentioned is treated as a variety of *C. quercicola*, Payk., by Fowler and Sharp, but it is distinct from that species." The name *C. Crotchii* must be, in any case, erased from the British list, and, no doubt, *C. nigroterminatus* also; the latter is probably distinct from *C. mixtus*, Muls. and Rey, of which it is given as a synonym by Fowler and Sharp.—G. C. CHAMPION, Horsell, Woking: July 12th, 1895.

Phosphaneus hemipterus near Southampton.—In the "Entomologist" for September, 1894, I recorded the occurrence of a single specimen of this singular glow-worm about four miles from here. On the 21st June last past I observed a specimen running on the earth in my garden, and on the following days till the 25th further search resulted in the capture of about seventy specimens of this insect, which has hitherto (with the exception of the one mentioned) not been recorded in this country, except at Lewes in Sussex. The specimens were all taken within a few yards of the spot where the first one was found, none more than say forty yards off, and on the earth and gravel walk near a thick box edging, which, by the way, contains many snails. They all appear to be males, but the female is unknown to me. The light, which is greenish, is shown on two points only on the apical ventral segment, and is of course not visible by daylight, when it is the habit of the insect to move about actively, crawling and "twiddling" its antennæ incessantly. It was fine hot weather, and a shower which fell on the evening of the 21st seemed favourable to their development. Mulsant has described both the female and the larva of this species at some length (Col. Fr., Mollipennes, pp. 119, *et seq.*); of the latter he says—"On la trouve au pied des plantes, et pour ainsi dire en famille." But it is not, it would seem, known whether they feed on snails, as I surmise. The insect is very generally distributed in middle and Southern Europe; but, as I have been told in France, is uncertain in appearance, occurring as it has done now in this country in quantities when it is found.—H. S. GORHAM, Shirley Warren, Southampton: July, 1895.

Plusia moneta at Norwich.—I think you may be interested to know that I took another beautiful specimen of *Plusia moneta* on the wing last evening, about 9.45, when going the rounds of the sugared trees where we took the one last year.—B. C. TILLET, St. Andrew's Street, Norwich: June 27th, 1895.

Micro-Lepidoptera at Reading and neighbourhood.—Having given some attention to the *Micro-Lepidoptera* (especially the *Tortrices* and *Tineina*) in this district and that of Basingstoke adjoining, during the last two years, I think a list of the more rare and interesting species taken may be of interest to other Lepidopterists.

Chilo phragmitellus, at light, Reading. *Scoparia pallida*, in boggy situations, Reading. *Tortrix piceana*, among Scotch pine, Reading. *Dichelia Grotiana*, Basingstoke. *Mixodina Ratzburghiana*, in a mixed wood of spruce, larch, pine, and various other trees, Basingstoke. *Eupacilia flaviciliata*, taken by brushing the herbage on chalky hill sides near Reading, and on a clay soil near Basingstoke, but in both cases among plenty of *Scabious*. *Penthina fuligana*, beaten out of underwood, Reading. *Sciaphila conspersana*, Reading. *Pædisca profundana*, a very fine and handsome variety, orange-red irrorated with silvery, Basingstoke; *P. occultana*, at light, Reading. *Semasia Ochsenheimeriana*, taken in a young spruce plantation; *S. scopariana*, in an oak wood in which the underwood and herbage is very varied, Basingstoke. *Xanthosetia inopiana*, among fleabane, Reading. *Argyrolepis Baummanniana*, among *Scabiosa succisa*, Basingstoke; *A. subbaummanniana*, on chalky hill sides, Reading.

Xysmatodoma melanella, on tree trunks, Reading. *Scardia ruriolella*, Reading; *S. carpinetella*, Reading. *Tinea ferruginella*, Reading; *T. nigripunctella*, from

inside gas lamps on the outskirts of the town of Reading. *Adela Sulzella*, beaten from a hedge row, Reading. *Micropteryx salopiella*, among birch, Reading. *Scythropia cratagella*, common on whitethorn and wild apple, both at Reading and Basingstoke. *Gelechia athiops*, disturbed from heather in the same way as *G. ericetella*, for a dark form of which it might easily be mistaken, Reading; *G. Lyellella*, the well marked and unicolorous black forms disturbed from among coarse herbage, Reading; *G. Knaggsiella*, taken from tree trunks, Reading; *G. semidecandrella*, in sandy places, Reading; *G. scriptella*, plentiful in an old damp ditch by the side of a hedgerow, Reading; *G. albiceps* and *nanella*, tree trunks, Reading; *G. arundinetella*, taken in a boggy place, Reading; *G. gemmella*, tree trunks, Reading. *Ecophora lunaris*, beaten out of underwood, Reading. *Butalis incongruella*, on a heath, Reading. *Perittia obscurepunctella*, among honeysuckle, Reading. *Coriscium Brongniardellum*, in an oak wood, Reading. *Argyresthia dilectella*, among juniper on the chalk downs. *Coleophora bicolorella*, *olivaceella* and *palliatella*, by general beating. *Laverna vinolentella* and *atra*, Reading. *Elachista cerussella*, among coarse grasses. *Phyllocnistis suffusella*, among aspen.—A. H. HAMM, 24, Hatherley Road, Reading: June 15th, 1895.

Obituary.

The Rt. Hon. Thomas Henry Huxley, LL.D., M.D., F.R.S., &c., &c., born at Ealing May 24th, 1825, died at Eastbourne June 29th, 1895. It would be superfluous for us to attempt any detailed notice of Prof. Huxley, whose recent death has placed the scientific world in mourning. Possibly his sole contribution to Entomology in the restricted sense was the remarkable memoir, "On the Agamic Reproduction and Morphology of *Aphis*," published in the Transactions of the Linnean Society of London, vol. xxii (1858-59), and of course this had far more than a purely entomological importance. Very many entomologists will have studied his "Crayfish" (1879) with advantage, a work in which his broad sympathies (even with the much abused "mere systematist") are manifest in every chapter. Possibly no man (Darwin not excepted) did more to influence modern thought on questions of Natural Philosophy and kindred subjects; it is certain that no man more industriously endeavoured to restrain, the excesses of some of the post-Darwinians. It remains to be seen what the effect of the untimely removal of the curb will be.

Laureano Perez Arcas died at Requena in Spain on September 24th, 1894; he was born at the same place on July 4th, 1824. It is only quite recently that the news of the death of this prominent Spanish entomologist and naturalist has been made public outside his native country. He published an educational work, "Elementos de Zoologia," which extended to six editions (1861-1886), and many papers on Entomology, principally on *Coleoptera*. He was the founder in 1871 of the Sociedad española de Historia Natural, a most useful Society, in the "Anales" of which most of his entomological writings appeared.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *May 20th*, 1895. — Mr. P. W. ABBOTT, Vice-President, in the Chair.

Mr. Abbott showed a series of *Zygæna meliloti* from the New Forest, for comparison with some doubtful specimens of Mr. Wainwright's, which he believed to be only vars. of *Z. lonicera*; also a pale specimen of *Agrotis ripæ* bred from Freshwater, and *A. Ashworthii* from North Wales, bred by Mr. Gregson. Mr. R. C. Bradley showed *Pompilus viaticus* from Wyre Forest, and remarked on the extraordinary activity of the Family *Pompilidæ*, and the difficulty of capturing them. Mr. Valentine Smith, a variety of *Rhagium bifasciatum* from Edgbaston, with the white colour much extended, making a white-looking specimen; also *Elater balteatus* from Edgbaston, and three *Hister purpurascens* from New Street in the centre of the City.

June 1st to 4th.—The Fourth Annual Excursion was made to Cannock Chase, but owing to the dullness of the weather, and the very small attendance of Members, nothing of importance was done, though a number of insects were secured.

June 17th, 1895.—Mr. R. C. BRADLEY in the Chair.

Mr. A. H. Martineau showed *Sinodendron cylindricum*, ♂, from Solihull; *Criorhina asilica* from Trench Woods; and some unusually fine specimens of *Andrena rosæ*, var. *Trimmerana*, from Clifton Downs. Mr. P. W. Abbott, a number of *Lepidoptera* taken during a three days' trip to Wicken at the end of May; amongst others were *Arsilonche albovenosa*, *Meliana flammea*, *Nascia ciliaris*, *Acontia luctuosa*, *Myelophila cribrum*, *Earias chlorana*, *Lithostegia griseata*, *Hydrelia uncula*, *Bapta taminata*, and *Phibalapteryx lignata*. Mr. C. J. Wainwright, fine series of *Asthena luteata* and *Eupisteria heparata* from Cannock Chase. Mr. R. C. Bradley, a number of grass heads from Sutton Park covered with great numbers of *Melanostoma scalare*, which had been killed by a fungus; he found great numbers, but only in a small spot a few yards square, and all were on the grass flower heads only; there was only the one species too; they had evidently been attacked by the fungus, and had then gathered together at the one spot to die: while he was watching others continued to arrive, and all remained to die. He also showed an *Ichneumon*, the thorax of which, when taken, was covered with bright red parasites of large size; it made the insect look, when caught, as if it had a very large bright red thorax; the parasites looked like beetle larvæ. He also showed a specimen of *Crabro palmipes*, with a cluster of eggs at the base of the wings on one side. Both of these were from Sutton Park. Mr. Valentine Smith, the following from Cannock Chase: *Pterostichus lepidus*, *Cymindis vaporariorum*, and *Thymalus limbatus*.—COLBRAN J. WAINWRIGHT, *Hon. Secretary*.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: *May 23rd*, 1895.—T. W. HALL, Esq., F.E.S., President, in the Chair.

Mr. Barrett, on behalf of Mr. Horne, of Aberdeen, exhibited very long series of both *Agrotis cursoria*, Bork., and *A. tritici*, L., from the N. E. Coast of Scotland

showing such a range of variation that it was difficult to determine where one species ended and the other began; also a gynandrous specimen of *Saturnia carpini*, L., belonging to Dr. Mason, one side being male the other female. Mr. Edwards, a specimen of the rare female of *Morpho Cypris*, from Bogota, with a male for comparison. Mr. Dennis, ova and young larvæ of *Leucophasia sinapis*, L., and of *Lycæna Argiolus*, L., under the microscope. Mr. Hall, two specimens of the rare var. *unicolor*, Staud., of *Mamestra persicaria*, L., bred by a northern collector from a dark specimen derived from suburban larvæ; also several specimens of a *Eupithecia* from Mr. Machin's collection, which Members thought were *E. minutata*, Gn., var. *knautiata*, Greg. Several Members who had larvæ of *Callimorpha Hera*, L., had been only very partially successful in getting them through the severe frost. A long discussion took place as to the felling of trees in Epping Forest. The consensus of opinion was that no harm had been done, and that none was intended to be done. Mr. Carrington and others thought that a periodical cutting of the undergrowth would be of great advantage to entomologists, and instanced the method of cutting Woods in Surrey and Kent.

June 13th, 1895.—The President in the Chair.

Mr. Frohawk exhibited a dark leaden-blue var. of *Lycæna bellargus*, Rott., taken at Weymouth in 1892. Mr. Perks, a *Julus* taken among bananas in Covent Garden. Remarks were made by several Members on the season, and a few records were made of the appearance of *Colias Edusa*.

June 27th, 1895.—The President in the Chair.

Mr. Jäger exhibited a bred series of *Arctia lubricipeda*, Esp., from *radiata* parents; among them were both var. *radiata* and var. *fasciata*, as well as some almost normal types. Mr. Turner, eggs of the lace-wing fly. Mr. Dennis, a larva of *Catocala nupta*, L., a pupa of *Lycæna Argiolus*, L., and a pale specimen of *Argynnis Selene*, Schiff. Mr. West (Greenwich), specimens of *Cryptocephalus nitidulus*, Gyll., *C. coryli*, L., *C. aureolus*, Suf., and *Elatér elongatulus*, Ol., all taken in Headley Lane on June 3rd.—HENRY J. TURNER, *Hon. Secretary*.

INCREASING MELANISM IN THE BRITISH GEOMETRIDÆ.

BY C. G. BARRETT, F.E.S.

Of all the phases of colour-variation which occur with us none is more interesting than that which within the last few years has come more and more into notice—the tendency on the part of several species of *Geometridæ* to assume a black, smoky-black, or grey-black hue, while at the same time losing almost all trace of their normal markings. There are good reasons for believing it to be a somewhat modern development of variation, and its quite recent extension to fresh species has roused fresh attention to the subject, rendering it desirable that the "History of the movement" should be written, or, at any rate, the records, such as they are, brought together. There

are difficulties in the way—one especially—the circumstance that when a deviation is *first* noticed there is nothing to point to it as a form likely to become recurrent, and there is, therefore, no urgent inducement to record it; and it *may* be that melanic forms of the species in question have long existed, though it seems certain that they have, of late, vastly increased in numbers. The cause has been frequently and exhaustively discussed, and I do not propose now to meddle with that subject, but merely to collect together the materials scattered through this and other Magazines, personal information, and notes on the forms in many of our best collections, in such a manner as to furnish a basis for further observations.

Before going further, I wish to make it clearly understood that the phase of variation to which I propose to draw attention is not that form of melanism which results in a blackening and intensifying of the *usual* markings of the species, as is to be seen in *Gnophos obscurata*, nor even of so moderate a change towards smoky-black as is exhibited very often in London specimens of *Boarmia rhomboidaria*, but that of an absorption of the usual markings, and substitution of smooth clear black or smoky-black over the fore-, and in some cases the hind-wings, only interrupted, usually, at the nervures. Those to which I wish to draw attention more particularly are *Amphidasys betularia*, *Phigalia pilosaria*, *Boarmia repandaria*, *abietaria*, *roboraria*, *Tephrosia crepuscularia*, with its variety *biundularia*, *Venusia cambrica*, and *Hibernia progemmaria*. Our earlier authors, Haworth, Curtis, Stephens, Wood, Westwood and Humphrey, and even Stainton and Newman hardly refer to these forms. Their descriptions and figures are, of course, of specimens having the normal markings, but varieties so striking as we now know would surely not have been ignored by all these writers had they been in existence.

So far as I can discover, the first species observed to take this line of variation was *Tephrosia crepuscularia*, and its paler form, *biundularia*. In the year 1866 Sir John T. D. Llewelyn recorded in this Magazine the capture of “a handsome leaden-coloured variety of *Tephrosia laricaria*” (*crepuscularia*), from which he obtained eggs. Through an accident only eight pupæ of this batch were reared, but of these five were of the dark “leaden-coloured” variety. In 1868, however, and subsequently, a good number were reared, and in 1872 he wrote as follows:—“A few years ago I obtained three batches of ova from dusky smoke-coloured females of *Tephrosia crepuscularia* (*laricaria* of Stainton’s Manual) by males of the ordinary typical clayey-grey colour. From these ova I reared to maturity, in the fol-

lowing year, about 160 moths, in the exact proportion of half dark and half pale. I now had the opportunity of obtaining ova of which both parents were dark. They throve, and my series the next year emerged in about the proportion of two dark to one pale. Again I obtained ova from dark parents out of this batch—darkly bred dark specimens—and this year my whole series (90) has emerged dark, not one casting back to the original and natural colour. I used to (and still can) take the dark variety at large in the larch plantations here, but sparingly, and in a much lower proportion, say, one dark to thirty of the typical colouring.”

Ten years later the same careful observer found that this form of variation had extended to the parallel, later-emerging, whitish form of the species (by some held to be distinct), *biundularia*; but he noticed that in this the variety was “black, but with the subterminal line conspicuously pencilled-out in white.” From that time the black form in *biundularia* has increased in numbers, and is now, I believe, common, but curiously enough, in South Wales, preserving the character of the white subterminal line.

Let us now turn to another district. In the “Entomologist” for April, 1887, the late Mr. Nicholas Cooke, of Liverpool, wrote:—“The most interesting case of melanism that has come under my observation is the total change in the colour of *Tephrosia biundularia* in Delamere Forest. Some thirty years since, when I visited Petty Pool Wood, this species was very abundant, appearing in March, and was to be found through April and May, but all were of a creamy-white ground colour. Dark varieties were so scarce that they were considered a great prize. Now, it is just the reverse, all are dark smoky-brown, approaching black, a light variety is very rare.” This statement shows the condition of things in Cheshire ten years before the time when the dark *crepuscularia* began to be noticed in South Wales; and incidentally it points to another rather unexpected circumstance—that all the specimens then found occurring in March and till June were of the same creamy-white form. With reference to this I made very careful enquiry when at Liverpool some time ago, of Messrs. Capper, Pierce, Gregson, and others, and found that, without doubt, in that district, the specimens of the early emergence, in March, were creamy-white, that the browner form, taken in February and March in the southern woods, was quite unknown there; and that the first appearance of the blackish varieties was not in the March emergence, but that these were found at first only toward the end of May. In time the later emergence came to consist so largely of dark grey and

blackish forms that the latter were supposed by the local Entomologists to be typical *biundularia*, while they held the creamy-white form to be typical *crepuscularia*, when arose in due time much controversy at cross purposes. In time the melanic influence extended to the March emergence, and now nearly all are alike dark; the change extending to both fore- and hind-wings.

In some parts of Yorkshire the change does not seem to be quite so complete; the creamy-white form appears later, from April till July, some of the specimens being more or less tinged with the brighter light brown colouring, and a few dark grey or smoky-black, which black specimens are said to be always the latest to appear in the season. In Derbyshire those appearing in the beginning of April are of various shades of grey, and dark grey approaching to blackish, but, so far as I have observed, they have hardly assumed the *smooth* black tone of colour, but are clouded and mottled with dark grey, and even in some instances have one wing paler or darker than the rest, apparently indicating a state of transition; but the normal markings are, in them, usually more or less obliterated, and they rarely show the white subterminal line of the South Wales examples. I have seen recent specimens of this last form taken by Capt. Robertson and Mr. Holland near Swansea, and they agree in this respect with the earlier Neath examples. The dark variation of this species does not seem as yet to have very greatly extended its area in this country, but Professor Meldola has met with it in the Isle of Man, and Mr. Chas. Watts in Ireland. Abroad it is well known in mountainous districts.

AMPHIDASYD BETULARIA.—Probably this was the next species to exhibit melanic symptoms—certainly it has given them full and free course. No record seems to have been kept of the first black specimen, though it is wonderful that so striking an aberration should pass unnoticed.

In the "Entomologist" for October, 1886, Mr. Joseph Chappell, of Manchester, says:—"In my early days the black variety was almost unknown. I think Mr. Edleston purchased the first I heard of. In the Manchester district the species has gradually altered in colour from light to dark during the last forty years. The dark forms now predominate." In 1865 Mr. Edleston wrote in the same Magazine, "some sixteen years ago the 'negro' aberration of this species was almost unknown." These statements place the origin of this black variety within the period from 1846 to 1850. Mr. Edleston further remarks (in 1865):—"I placed some virgin females in my

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garden in order to attract the males, and was not a little surprised to find that most of the visitors were of the ' negro ' aberration," tend to show the rapid progress made in the sixteen years. Ten years later, the " negro " variety had spread over Lancashire into Yorkshire, and to Delamere Forest, Cheshire. In a few more years it had reached Leicestershire, Derbyshire, and Lincolnshire. Dr. Wheeler tells me that in 1870 the black form was almost equal in numbers with the type at Newport, Monmouthshire, and that a few years later the typical form had almost vanished from that district. This may also be said now of some of the other districts. Mr. R. Newstead tells me that at Chester he has seen none but black specimens for many years. In 1890 the black form was found in Nottinghamshire and Staffordshire, in 1892 at Cambridge, in 1893 in Norfolk, and in 1894 near Reading, Berks, and in Ireland ; but in each case only casual specimens.

We also hear from abroad that it seems to be advancing steadily up the Rhine, and that it has been taken in Silesia, Saxony, Hanover, Holstein, and other parts of Germany, as well as in the Netherlands.

This is a far blacker and more uniform aberration than in the previous species ; indeed, the deep smoky blackness extends in it to thorax, abdomen, fore-wings, and wholly or partially to the hind-wings ; the general sooty appearance being relieved by a broad pure white blotch on the face, and a round clear white spot at the base of the costa of each fore-wing. Before this black form became dominant, intermediate varieties, showing the normal black markings greatly intensified, were often obtained, but these have now become rather scarce.

BOARMIA ABIETARIA.—I find no definite record of a clear black form of this species, far less of its first occurrence ; all descriptions and figures, whether under this name or that of *sericearia*, referring to a typical, well marked, brown form, having transverse black lines and other markings ; yet it is certain that, for the last thirty years at least, a beautiful silky black variety, occurring in both sexes, and sometimes wholly destitute of markings except the blacker nervures, has been obtained from time to time by London Entomologists from Leith Hill, Surrey. Usually these have been reared from larvæ beaten out of fir in that district. My own specimens were reared by the late Mr. Machin, and I know that from time to time he obtained a great many. This form, though as complete in its melanic change as the last, does not become dominant, and to all appearance has not spread from this one locality. In it, fore- and hind-wings are alike shining black.

PHIGALIA PILOSARIA.—The first intimation that this species was following the example of *Amphidasys betularia* was supplied in 1891 in this Magazine by the Rev. Canon Fowler, regarding a specimen found at Gainsborough, Lincolnshire:—"rich velvety black all over, except the veins of the upper-wings, which were brown." In 1892 another was found in Derbyshire. In 1893 Mr. South recorded a black apterous female at Barnsley, and in the following year the rearing of this variety in both sexes; also that a black example had been found at Wharnccliffe, Sheffield, ten years before. In 1892 a deep black male was secured near Rotherham, Yorkshire, by Mr. W. Brookes, and following up this clue, he has obtained similar specimens in each following year; in 1894 as many as six, besides intermediates. Other examples have been obtained from time to time: one is in the collection of the late Mr. Bond; and Mr. Gregson says that he took one, now in Mr. Sydney Webb's collection, twenty-five years ago; others are in Dr. Mason's collection, and two of a unicolorous dark grey, rather than black, have been taken at Hartlepool, Durham. In all these, whether black or grey, the usual markings have become absorbed, but the nervures are distinctly darker than the remainder of the wing. The hind-wings in this species appear to be but little affected. There can be no doubt that this has become a permanent and recurrent variety in Yorkshire and some of the adjoining counties.

BOARMIA REPANDATA.—Numerous as are the permanent varieties of this fine species, and strikingly handsome as are some of them, no tendency in the direction of unicolorous blackness seems to have been observed in it by the earlier writers. Although divided into supposed species—*repandata*, *destrigaria*, *conversaria*, *muraria*—all well marked varieties; no figure or description refers to any form devoid of the ordinary makings of the species. In 1887, however, Mr. G. T. Porritt found a handsome blackish form, some of the individuals being smooth glossy black, not uncommonly in a fir wood in the Huddersfield district. Eggs laid by some of these produced in the following year specimens which he described as "almost absolutely inky-black, blacker indeed than the well known form of *Amphidasys betularia*." Three or four years later, the same black form was reared in some numbers from larvæ found near Sheffield by Mr. A. E. Hall, and I saw a great many magnificent specimens in his boxes. Other collectors have since reared it from larvæ found in the same neighbourhood, and although at present apparently confined to South Yorkshire, this handsome variety is certainly increasing in numbers. In it the fore- and hind-

wings are equally black, with deeper black nervures, but on the hind-wings is very often a slender, much scalloped, white subterminal line.

BOARMIA ROBORARIA.—So far as I know this is the latest British species to adopt the unicolorous black tint. In 1893 I saw in Mr. S. J. Capper's collection six specimens of a most beautiful, smooth, smoky-black, with nervures and the lunules of the hind-wings deeper black. Since then Mr. Capper has obtained more specimens, one of which he has most liberally added to my collection; and informs me that all were reared by a correspondent, in whom he can rely, in the Midland Counties; but for obvious reasons the exact locality is not revealed. The statement of the captor is as follows:—"I have taken the ordinary form of *roboraria* for many years, and once, about eight years ago, a black one, which was badly rubbed. In 1892 a second, from which I bred those you have. I think it was at the end of June when I took it—a fine female—at rest on the trunk of an oak. The ova hatched in the middle of July, and I fed them through the summer to the end of October, when they began to hide away. In January I found some of them wandering about for food, so I got them young twigs of oak, and scraped the bark. Some of them ate the bark, but not many, and I only managed to rear about twenty to the perfect state, some of them being black. Two of these I kept and bred again, both being black ones, but I could only rear about thirty, of which you have the black ones, except one pair, and from these I have only pulled through fifteen larvæ, so I fear that I shall lose the brood." Besides these I hear of only one British specimen, and it will be for future observation to show whether this handsome aberration establishes and extends itself. Like *B. repandata* it usually shows a whitish subterminal line on the hind-wings.

VENUSIA CAMBRICA.—Of the unicolorous blackish form of this pretty species I find no record in any descriptive work or magazine. It is, however, mentioned in the Proceedings of the South London Entomological Society for 1888, the specimens having been obtained from the neighbourhood of Sheffield. In 1890 four more specimens obtained from the same locality were exhibited before the same Society by Mr. Percy Bright.

There is one in the collection of the late Mr. F. Bond; one in that of Dr. Mason; and a very few more scattered in various cabinets. This variety is not black, but blackish-grey, with darker nervures, and, like the previously noticed species, has lost its typical markings. At present it is only a very local aberration.

HIBERNIA PROGEMMARIA.—A somewhat similar change has taken place in this species in Yorkshire. Mr. G. T. Porritt records in this Magazine (vol. xxiii, p. 40) its occurrence in the Huddersfield district in greatly increased numbers, and increased intensity of blackness, the semi-apterous females in particular having become, in many cases, quite black. The same has more recently been noticed at Rotherham, Sheffield, and elsewhere in South Yorkshire, and to some extent in neighbouring counties; but the colour assumed is fuscous or black-brown, rather than smoky-black; the fore-wings are more opaque, and the usual markings obscured or obliterated, but the nervures are not distinctly darker, nor are the hind-wings in the male so strongly darkened.

In the present remarks I have confined myself to the *Geometridæ*, though well aware that in such species, in other groups, as *Xylophasia polyodon* and *Diurnea fagella*, somewhat similar phenomena may be observed.

As a pendant to the foregoing remarks, or even as a possible indication of further deviations, it may be well to record that in the cabinet of Mr. S. J. Capper at Liverpool is a smooth smoky-black *Boarmia cinctaria*, without markings, except the darker nervures, taken some years ago in the New Forest; that Mr. Sydney Webb has an equally black *Boarmia consortaria*; and that, in the New Forest, *Cleora glabraria* exhibits a distinct tendency in the same direction, several specimens, in the same and other collections, being smoothly clouded with black from the base, and having the markings partially obscured.

39, Linden Grove, Nunhead, S.E.:

June, 1895.

SOME OBSERVATIONS ON BRITISH OAK GALLS.

BY G. C. BIGNELL, F.E.S.

ANDRICUS AMENTI.—I think it is worth recording that I have bred this species (a single ♀) from a gall obtained at Bickleigh in May; bred June 11th, 1887. The abdomen, however, is black. Having a doubt about it, I sent it with the gall to Dr. Mayr, who returned it with the above name. The only previous records of the species in this country are from Braemar and Kew.

ANDRICUS MALPIGHII.—This gall can be obtained in Cann Woods and Bickleigh in September and October; in 1890 I collected a few and bred the flies in March, 1892. Of the sexual form, *nudus*, I

collected several galls from the male catkins on May 14th and 20th, the flies emerging May 26th to 28th, 1895. Parasite, *Pteromalus tibialis*, bred June 12th.

ANDRICUS GLANDULÆ.—On October 3rd and 17th, 1890, these galls were abundant in Cann Wood. In the galls that I examined on the 17th the larvæ were full fed in the upper part, lower cavity empty; I bred a number of inquilines (*Synergus radiatus*) May 1st, 1891, and following days. I examined a few galls in January, 1892, and found perfect flies, those not disturbed emerged in April. The last sentence but one on page 102 of Cameron's Ray Soc. Vol. on the Oak Galls, should read—"The insect emerges in the spring of the second year."

ANDRICUS SOLITARIUS.—I can confirm Dr. Mayr's statement that the flies emerge in September, having beaten them out of oak in Cann Wood on September 29th, 1890.

NEUROTERUS LENTICULARIS on page 131 of Cameron's work, 8th line from bottom, after "April," read "The eggs of the agamic female are laid, &c."

NEUROTERUS (SPATHEGASTER) TRICOLOR.—I have bred two parasites from this species, *Torymus auratus* and *Pteromalus tibialis*.

NEUROTERUS (SPATHEGASTER) ALBIPES.—The only parasite I have bred from this species is *Pteromalus tibialis* (not recorded by Cameron).

NEUROTERUS (SPATHEGASTER) VESICATRIX.—Out of fifty galls collected in May and June this year (1895) I have not bred a single maker, the majority contained inquilines (*Synergus albipes*), in some instances two in a gall, and as usual separated by a slight partition; the remainder produced parasites (*Pteromalus tibialis*).

NEUROTERUS (SPATHEGASTER) APRILINUS.—The quick development of this species is something truly wonderful. The first gall seen with difficulty, just appearing out of the bud, was on April 29th, it was fully developed, and the fly emerged on May 2nd; only collapsed and shrivelled galls were seen on May 6th. In the middle of May (17th) I discovered a tree with a lot of shrivelled *aprilinus* galls, and on May 23rd I found galls of *Neuroterus Schlechtendali* mature and ready to fall to the ground on the slightest touch; this gall was only observed on the same tree that produced the *aprilinus* galls. It will be interesting if *Schlechtendali* proves the agamic form of *aprilinus*. I trust I shall be able to decide this in 1897, as I have some hundreds of *Schlechtendali* galls; unfortunately the flies do not appear until July of the second year.

ANDRICUS RAMULI.—Dr. Adler, in his remarks on the oak-apple gall, says, "There is a curious phenomenon in the propagation of *Teras terminalis* which deserves notice. It appears that whilst some galls produce both sexes, some yield only females and others only males." These remarks may also hold good relative to *ramuli*. From five galls obtained this year at Bickleigh, and one found at Ivybridge, 1892, I bred males only.

EULOPHUS EUEDORESCHUS, Walker.—This species is not recorded as a parasite on *Andricus fecundatrix* in Cameron's vol. on Oak-galls, perhaps by an oversight. I have bred it from that host, and so far as my observations go, it is the only one that remains so long in the larva stage. From galls collected in August, 1887, the flies emerged in 1889. Other galls obtained in August, 1891, produced flies in May, 1893, and from those gathered in August, 1893, the flies came out May 10th, 1895. *A. fecundatrix* (gall maker) appears in March and April of the second year, the parasite nearly (or quite) two months later.

Stonehouse, Devon: *July*, 1895.

ANASPIS RUFICOLLIS, F., AND *A. GEOFFROYI*, MÜLL.

BY G. C. CHAMPION, F.Z.S.

Messrs. F. and E. A. Waterhouse have recently submitted to me for examination an interesting series of these two common species of *Anaspis*. The *A. ruficollis* vary from their normal colour to entirely black, legs, antennæ and palpi included. Some of them have the thorax fuscous, with the sides rufescent and the legs fuscous, these specimens being clearly referable to the var. *c.* or *A. alpicola* of Emery.* In this species the elytra usually have a broad sutural stripe of blacker pubescence, this becoming wider towards the apex, the rest of the pubescence being greyish. The male characters are quite similar in the various forms; the intermediate tibiæ are straight on their inner edge.

Amongst the *A. Geoffroyi* there is a specimen entirely black, legs, antennæ and palpi included. Neither Mulsant† nor Emery mentions an entirely black form, nor do they (nor Fowler) notice a well-marked male character in this species, viz., the strongly sinuous inner edge of the intermediate tibiæ. Messrs. Waterhouse's specimens were all found recently near Putney.

Horsell: *August 17th*, 1895.

* Essai Mon. sur les Mordellides, p. 22 (1876).

† Mulsant's description of this species occupies 5½ pages of his "Longipèdes."

SUPPLEMENT TO "A SYNOPSIS OF BRITISH *PSYCHODIDÆ*."

BY THE REV. A. E. EATON, M.A., F.E.S.

The present article concerns matters omitted from the "Synopsis of British *Psychodidæ*," published in the volumes of this Magazine for the years 1893 and 1894. Their omission was largely due to illness retarding the progress of investigation, and partly to their not being required for differentiation of the species characterized. Among the additional particulars are items likely to be of value in larger schemes of classification; but their relative importance cannot be gauged exactly from so limited a number of species as the author has been able to study. On this account, and out of consideration of the supplementary nature of these notes, it seems desirable to refrain from establishing new genera in place of subdivisions of the old genus *Pericoma* at this juncture, although it needs no great ability to discern elements of distinct generical rank among the rallying points mapped out for the assemblage of species. To give a fuller grasp of the subject, mention is made of Algerian *Psychodidæ* (to be described in a future communication) that do not quite conform to British standards; these are denoted by numerals, to facilitate ulterior reference. And with the same object in view, a few particulars that have already been touched upon in the Synopsis are briefly re-stated so far as may be absolutely necessary for the elucidation of leading differences; because the analytical tabulations previously set forth were not entirely founded upon lines of formal classification.

Note to Introduction; ante, 2nd series, vol. iv, p. 6, first paragraph. —The wings of *Psychodidæ* are distinctly hairy on the nervures and margins. Scales in both sexes are often substituted for hairs at the wing-roots on their under-side; and in the males of a few species this substitution is much more extended along certain of the nervures. The wing-membrane also is beset with hairs; but these are of extreme microscopical minuteness, and when only moderately magnified produce an appearance of punctulation or fine stippling. The more obvious hair is remarkable for diversity in its arrangement. In some members of the Family it conforms very generally to the ridge and furrow contour of the surfaces—the hairs spreading pinnately and obliquely from the nervures, rather close to the membrane, and intercrossing at their tips in opposed ranks when the membrane is slack. But the hair on the upper-side of certain nervures in most of the *Psychodidæ* is bristling or ruffled up to some distance from the wing-roots. The nervures on which the hair is bristling are not

universally the same, and the extent of the bristling hair on identical nervures varies in different minor groups of species; and, therefore when its limits and position are correctly ascertained, it yields data worth taking into account. Where the hair is bristling, the hairs tend to be secund and in some measure reclinate inwards; elsewhere they are either distichous or tristichous and slant outwards, two ranks in the latter case spreading pinnately over the membrane, and the third rank ascending obliquely. The ruffled hair in *Sycorax* is exceptional in texture, being serrulate, as in *Hydroptilidæ*.

Some additions may now be made of introductory matters unmentioned in the Synopsis. Halteres of *Psychodidæ* are usually clad with appressed scales, seldom with hairs. Sexual differences in the dimensions of corresponding parts of homologous legs are as a rule too small to be detected without careful admeasurement, and are rarely worth recording. Many *Psychodidæ* possess appendages to the antennæ homologous with the chitinous bristles of joints in the flagellum noted in the Synopsis under *Pericoma soleata*, ante, 2nd ser., vol. iv, p. 126. Their nature is undetermined. In some species there is danger of ill-focussed hairs being mistaken for them; but they are not always hair-like nor setiform. In *Pericoma incerta* they have the appearance of longitudinally striate squamulæ; and in species of the 5th Section of that genus their form is digitate.

Recipients of named *Psychodidæ* distributed from the author's collection in September, 1894, are requested to note that under No. 31, *Pericoma fusca*, two species were intermixed, viz., *P. auriculata*, Curt. (the one described and illustrated in the Synopsis), and *P. fusca*, Macquart—vide post, *Pericoma*, 5th Section, species Nos. 31 and 32. There are, therefore, 41 described British species of this Family instead of 40.

Note to Analytical Key; ante, 2nd ser., vol. iv, p. 31.—The two Groups of genera roughly scheduled in the Synopsis may well rank as Sub-Families, and be characterized more methodically, as hereunder, for general use. The first comprises all the forms classed under *Ulomyia*, *Pericoma*, and *Psychoda*; the second, two British genera, *Sycorax* and *Trichomyia*, besides one foreign genus, *Phlebotomus*. The number of joints in the palpi is no longer taken to be a distinctive characteristic of the main divisions of the Family; it appears to be four throughout the *Psychodidæ*. Schiner considered these organs to be 5-jointed in *Ulomyia* and *Pericoma*—probably mis-reckoning the number in dried specimens; and in the Synopsis they were wrongly stated to be 3-jointed in *Trichomyia* and *Sycorax*—the basal joint

having been overlooked in specimens mounted on their sides between glass. This last error was detected on examination of unmounted fresh examples in 1894.

SUB-FAMILY I, PSYCHODINÆ.

Subcosta met at an acute angle by the radio-cubital nerve-trunk close to the base of the anterior basal cell. Posterior basal cell obtuse at its inner end. Anal-axillar trunk continuous with the anal nervure; axillar nervure well developed. Medias-tinal nervure usually abrupt and linked by a cross vein, at or near its end, to the subcosta alone; in the absence of a cross vein it ends in the subcosta. Cubitus present; hence at the wing's apex two simple nervures intervene between the forked nervures. Eyes excentrically reniform, approximate at the vertex. Inferior ♂ genital appendages borne at the extremity of a relatively large forceps-basis or subgenital plate (representing their basal joints connate), with which the perinæum is blended; the anal valve between them is median and terminal; their single free joints are armed with at least one tenacular spinule apiece. A pair of penis sheaths present sometimes. Flies inoffensive.

SUB-FAMILY II, PHLEBOTOMINÆ.

Subcosta met at right angles, very nearly in the middle or beyond the middle of the anterior basal cell, either by the flexed stem of the radius or by a cross vein from the radio-cubital nerve-trunk. Posterior basal cell acutely cuneiform. Axillar nervure (sometimes absent) continuous, when present, with the anal-axillar nerve-trunk. Mediastinal nervure confluent at its extremity with either the costa or the subcosta, usually ending therein with a bold curve and linked by a cross vein, placed at the commencement of the curve, to the opposite nervure. Cubitus absent in the British genera, but in *Phlebotomus* long-stalked, i. e., confluent with the radius far beyond the anterior basal cell. Eyes rotund or oval, distant at the vertex. Inferior ♂ genital appendages, when free, 2-jointed, and in this case the perinæum is free also, and in proportion of considerable size; when the basal joints are connate, the resulting forceps-basis or subgenital plate is very small. An under penis-cover and the upper penis-sheaths sometimes developed. Flies blood-suckers on occasion; but, judging from experience, only *Phlebotomus* in Europe and N. Africa is obnoxious to man.

ULOMYIA (Haliday, MS.), Walker (1856).

Syn. *Saccopteryx* (Hal., MS.), Curtis (1839), pre-occupied.

Refer *ante*, 2nd ser., vol. iv, p. 32, analytical key, step 4, and p. 34, woodcut fig. 1; also vol. v, pl. i, figs. U, ♂ and ♀ (details).

Affinities very near the 1st Section of *Pericoma*; distinguished by sexual differences in the wing, and a difference in the extent of the bristling hair on the pobrachial branches.

♂. Wing-pouches formed as follows:—Very near the end of the basal cell, the stem and strongly arched anterior branch of the pobrachial, together with the gently arched posterior branch of this nervure, distend a pouch one-quarter the length of the wing, protuberant above and open beneath, bounded in front by the præ-

brachial nervure (which is gently arcuate forwards thereabouts), and by the postcal nervure behind; the former branch follows the crest of the protuberance, while the latter passes with a low curve above its base. In front of all this, between the radius and præbrachial, is the narrow aperture of a collapsed pouch, formed by an oblique inverted arch in the cubitus (shown by dotted lines in *loc. cit.*, pl. i, fig. U, ♂), that projects as a rounded lobe on the under-side, guarding the gaping orifice of the inflated pouch. Seen from opposite the costa, the two pouches together resemble an oval vesicle bisected obliquely in the plane of the wing. In a denuded wing, mounted between glass and viewed with transmitted light, the curve in the præbrachial is apt to simulate an arch ascending parallel with that of the anterior pabrachial.

Bristling hair extended in parts of the wing beyond the shortest line from the end of the subcosta to that of the anal nervure; present on the mediastinal, radial stem and branches, cubitus, pabrachial stem and branches, postcal and axillar nervures; wanting on the subcosta, præbrachial and anal. This hair extends outwards farthest on the anterior radius, and farther on the posterior pabrachial and postcal than on the anterior pabrachial; it is whitish up to the forks at the base of the wing, and also for a short space at the outer terminations of the ranks, but elsewhere dark.

Beneath the wings, in both sexes, at the extreme base of the nervures interior to the fringes, linear scales take the place of hairs. Beyond this in the ♂, the nervures, from the cubitus to the anal, are densely squamose in the neighbourhood of the pouches, and the hairs in the nearest ranks on the nervures next in front and behind those are long; the hair of the posterior radial, dense and silky, spreads over the front of the collapsed pouch (the rim of which is bordered very densely with short scales), while that of the axillar spreads forwards, like very slender flattened ciliæ, below the anal.

In the antennæ of ♂ the 3rd joint (*i. e.*, 1st of the flagellum) is longer than the 4th, and has elongate scales mingled with the hairs; the nodules of the 15th and 16th joints are not quite in mutual contact, but the nude beak of the 15th is shorter than that of the 14th, or than the apiculus of the 16th joint; articular appendages apparently absent. In the ♀ the 3rd and 4th joints are subequal in length, and the nodules of the 15th and 16th in mutual contact.

Palpi filiform, pubescent; joints 2 and 3 in ♂, or 2, 3, and 4 in ♀, nearly equal in length to each other, and rather longer than 1, which in ♂ is subequal to 4.

Proportions of the parts in the hind leg without much sexual difference, but rather to the advantage of the ♀ in the tibia and tarsus. Tibial fringes moderate, yet well developed.

The larva, discovered by Haliday, is mentioned in Walker, *Ins. Brit. Dipt.*, vol. iii, pp. 254 and 261. Refer also to Osten Sacken, *Trans. Ent. Soc. Lond.* for 1895, pp. 150 and 152, who quotes Haliday's statements.

ULOMYIA FULIGINOSA, Meigen.

Trichoptera fuliginosa, Meig., * *Klassif. d. zweifl. Ins.*, Th. i, 45 (1804); *id.*, *Syst. Besch.* [ed. i], Bd. i, 107 (1818).—*Psychoda fuli-*

* Citations given at second hand in this article are distinguished by an asterisk.

ginosa, *id.*, *op. cit.*, Bd. vi, 272 (1830), and [ed. ii] Bd. i, 85 (1851) — *Ulogyia hirta* (Linn. ?), Walk., *Ins. Brit. Dipt.*, vol. iii, 261, pl. xxvi, 3a ♂, 3b ♀ [neururation].—*U. fuliginosa* (Meig.), Schiner, *Fn. Aust. Dipt.*, Bd. ii, 635; v. d. Wulp, *Dipt. Neerland.*, vol. i, 316, pl. ix, 14 [neururation, ♀]; Etn., *ante, l. c., supra cit., sub genere.*

♂. Adorned, for erotic display, on the head, thorax, and legs. Pubescence snow-white on the frons, white on the vertex and also on the notum both in front and laterally half way to the wings, greyish or blackish along the middle of the notum, but posteriorly at the sides of the notum yellowish-white or light ochreous; here and there at the tips of the hairs the lighter colour shifts to grey. Below the whiter part of the pubescence of the thorax anteriorly, on each side, a large, very dense and compact, arched, epaulet of black hair shelters what is assumed to be the scar of the pupal spiracle. Pleura black-haired; scales of halteres leaden-black. Short appressed hair of the femora glossy black. Hair and scales of the tibiae and tarsi glossed as follows with impure white or light ochre, viz.:—in the fore leg, the posterior slope of the outer side of the tibia and of the dorsum of the tarsus; in the hinder legs, the exterior lateral ciliae with the denser posterior fringe and some scales at the anterior dorsal apical edge of the tibia; also the posterior dorsal slope of the first two joints in the tarsus, and a few scales on the same side at the apex of the 3rd joint, and also a few at the apex of the 1st joint anteriorly. Palpi blackish-grey, glossed with whitish or yellowish-white. Antennae with very light ochreous scales on the scape and (in this sex) 3rd joint; the longer hairs of the flagellum light grey, shifting to dark grey or black; the shorter hairs whitish or light ochreous.

In ♀, on the above mentioned parts of the head and thorax, cream colour is substituted for white, and an impure whitey brownish-yellow for whitish; the hair at the sides of the thorax is light yellowish-brown; the tibial fringes are of a dull colour, and the light markings of the legs are much toned down and reduced in extent.

Wings above black or greyish-black, with whitish or yellowish-white markings, viz.:—at the base of the wing, a fascia, slightly curved and anteriorly widened, extending from the costal fringe to the axillar nervure and outwards to the bases of the forks; at the outer limits of the bristling hair, an angulated fascia broken into three unequal spots, of which the foremost and largest, on the radial branches and cubitus, has almost the form of a right-angled triangle truncate at the posterior acute angle; the second (on the pabrachial branches and postical) in the ♂ a curved streak, resembles in the ♀ an inverted comma, reversed in the right wing, with the tail pointing inwards, and the head subopposite the first spot; the third and smallest is near the end of the axillar; lastly, at the apex of the wing the fringe from the end of the posterior radius to a little beyond the end of the anterior pabrachial, the light colour also glossing the tips of some of the adjoining hairs. Elsewhere the fringe matches in colour the darker hair of the wing, and is glossed with light brownish-grey, the gloss shifting with change of posture. A blackish line defines the outer and posterior margins of the disc. Pouch in ♂ closely overlain with long appressed hair parted along the summit and pointing lengthwise obliquely; the hair whitish at the inner end of the pouch is elsewhere dark. Hair and scales of the under-side of the wing blackish-brown or greyish-black.

Abdomen dorsally with long and soft whitish-yellow pubescence, the colour shifting to whitish anteriorly, and to light greyish at the hinder extremity; ventrally with dark grey pubescence shifting to light grey. Superior ♂ appendages stout, obliquely inflexed: basal joint concave inside; 2nd joint ovoid and beaked, with the beak incurved.

A widely dispersed species in middle Europe, considered rare on the continent, but common in many southern English counties: Jersey (McLachlan); Ireland (Haliday); northern range unascertained. May to the end of June, and August to the end of September. In collections, females of *Pericoma nubila* are often attributed to this species, and *vice versâ*; but the greater depth of the forks of the wing-nervures in *Ulomyia*, and the receding of the limits of the bristling hair on the anterior pabrachial, instead of on the posterior branch, enable the species to be distinguished easily from any *Pericoma* of similar coloration. Westwood figured the ♂ wing from the under-side in Walker's *Diptera*, cited above.

(To be continued).

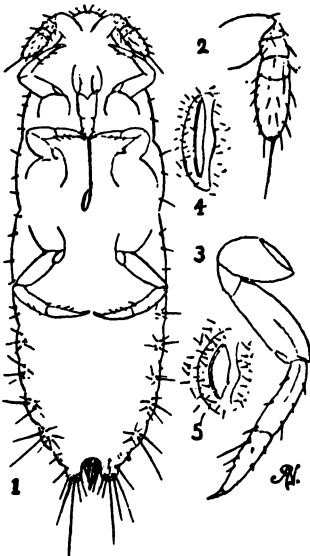
OBSERVATIONS ON COCCIDÆ (No. 12).

BY R. NEWSTEAD, F.E.S.,

CURATOR OF THE GROSVENOR MUSEUM, CHESTER.

RIPERSIA TERRESTRIS, n. sp.

♀ *second stage* (fig. 1) greenish-yellow; almost covered with white mealy substance; legs and antennæ yellowish. Very elongate, sides parallel, suddenly narrowed in front, rather widely rounded behind; segments distinct. Antennæ



(fig. 2) geniculated, placed very close together considerably behind the cephalic extremity, of 5 joints, of which 2 is much the shortest and wedge-shaped; 3 and 4 nearly equal; 5 the longest; 4 and 5 together are fusiform. Legs (fig. 3) short; tibiæ and tarsi nearly equal, the latter generally the shortest, with three strong spines arranged close together on the under-side; digitules to claw and tarsi wanting. Mentum biarticulate, very long; filaments rather stout, loop reaching midway between the intermediate and posterior legs. Anal lobes large, with numerous strong hairs. Anal ring with six hairs, placed at the extremity of the body. Dorsum with scattered hairs, more numerous and longer at margins of anal segments, where they are arranged more or less in tufts. On the cephalic region of the dorsum, immediately over the base of the mentum, are two large, slightly raised glands ("cicatrice,"

Signoret), shaped like the human eye; and two more arranged wider apart on the 2nd or 3rd segment; some appear closed (fig. 4), others open (fig. 5), and are surrounded with numerous fine hairs.

Long, 1, wide, .5 mm.

♀ *early adult*, containing ova, is larger than the ♀ 2nd stage, and has the anal lobes a little shorter; but differs in no other respect.

Long, 1—1.5, wide, .75 mm.

♀ *adult after gestation* differs from the above only in having the anal lobes normal (small) but clearly distinct. Unfortunately, the only two specimens of this stage that I could find have imperfect antennæ; one has the joints perfect up to and including the 4th, they are stouter and the hairs stronger, but their form and relative length are identical with the previous stage.

Long, 2.5, wide, 1 mm.

Hab.: on roots of *Stephanotis*, near London, February 6th, 1895.

An exceedingly interesting species; and although its 5-jointed antennæ are abnormal, in other respects it agrees with the genus. The eye-like glands on the dorsum are curious, and from what one can gather from the mounted specimens, it is highly probable that the insect has the power of opening or closing them at will. Signoret found a very similar character in his *Ripersia corynephor*i (Essai, p. 369, pl. xvii, figs. 1, 1a), which he terms a "cicatrice," but gives no detailed description of it. The arrangement of the glands in *R. corynephor*i is very different to what I find in this species.

It is important to note that certain changes take place in this species during the period of gestation. In the *early adult* the anal lobes are abnormally large; but in the older individuals they become normal. It is quite possible, therefore, that some alteration may take place in the antennæ at the very last stage, and during period of gestation; but this, for want of more material, cannot now be decided.

The *Stephanotis* is a host-plant for several species of *Coccidæ*, especially of *Dactylopius*, and it is only by constant care, and the frequent use of insecticides, brushing or sponging, that the "mealy bugs" can be kept in check. Hitherto, however, so far as the writer's experience goes in the British Isles, the roots of the plant have been free from the attack of any insect pest. Nothing is known as to how the insect has come amongst us; probably it has been recently imported with orchids or other plants; or it may be indigenous, and have been introduced in the "potting" material used in the cultivation of the *Stephanotis*.

Chester: May, 1895.

FUNGOID DISEASE OF *TIPULÆ*, &c.

BY BARON C. R. OSTEN SACKEN, Hon. F.E.S.

The notes by R. C. Bradley, "An Epidemic among *Melanostoma scalare*, caused by a fungus," in the August number of this Magazine, induce me to publish a similar case of disease which I observed on several species of *Tipulæ* of the group *Marmoratæ*, Schum. During the rainy summer of 1891 I spent some time in the Hôtel Kohlhof, about 1800 feet above sea level, near Heidelberg, and noticed the frequent occurrence, in the woods, of such diseased *Tipulæ*. In June I observed them with a swollen abdomen; through the thin membrane connecting the dorsal and ventral sclerites I could perceive something like an internal foam, composed of minute globular vesicles, which filled the abdomen. The chitinous coverings, especially towards the end of the abdomen, were scaling off from the effects of the disease, and in several cases the whole horny forceps of the male had fallen off, although the insect was fully alive and able to fly. I detached a part of the abdomen, placed it on a glass slide in a drop of water, and examined it under a magnifying power of 100. The vesicles, detached from the mass, appeared ovoid, with a distinct circular nucleus in the centre. Within the mass these ovoid vesicles seemed to be arranged in a beadlike fashion. Later, in July, I found a live specimen of the same kind of *Tipula* with the contents of the abdomen quite dry, pulverized, and the end of the abdomen broken off, just as in the above-mentioned cases. Prof. Askenasy, of Heidelberg, determined the fungus as an *Empusa*, perhaps *E. tipulæ*, Fresen.

A case very similar to that of Mr. Bradley's, concerning the same species of *Syrphus* (*S. mellinus*, L., = *Melan. scalare*, F.), has been described in detail by MM. C. Brongniart and Maxime Cornu in the vol. for 1878 of the "Assoc. Française pour l'avancement des Sciences." The plant was *Molinia cærulea*. To the literature quoted by those authors may be added the observation of F. Ludwig, in the "Botan. Centralbl.," Cassel, 1884, pp. 122-123, who found on the same plant, *Molinia cærulea* (near Greiz and Elsterberg in Central Germany on August 20th) thousands of specimens of *Syrphidæ* of the allied genera *Melithreptus*, *Melanostoma* and *Platychirus*, mostly dead, some of them still alive, but all affected by a fungoid disease. (An extract by J. Mik will be found in the Wien. Ent. Zeit., 1885, p. 30).

Heidelberg: August 1st, 1895.

Melanostoma attacked by fungus.—With reference to Mr. R. C. Bradley's observation of fungoid growth on *Melanostoma scalare*, F. (*ante* p. 178), I observed the same phenomenon when collecting at Ivybridge in June. Apparently all specimens of that species were affected in the same manner; I boxed two, and by the next morning the fungus appeared on them.—G. C. BIGNELL, Stonehouse: August 5th, 1895.

Coleoptera in the New Forest.—Accompanied by a friend, I spent the first week in July at Brockenhurst, and met with a few *Coleoptera* which seem worthy of notice. My own principal object was to discover the special haunt of *Anthaxia nitidula*; and this, after two days' fruitless investigation, I succeeded in doing. But we were rather late for the insect, and only took three specimens between us, all, of course, in flowers; it seems to be restricted to a very small area. Our other captures included *Microrrhagus pygmaeus* (3) on bracken; *Prionus coriarius*, dug out of a dead birch, and so immature that I had to keep it alive for nearly a fortnight before it acquired its proper colouring; *Phlaotrya Stephensi* (16) from the roots of a dead oak; *Cryptocephalus moraei* and *aureolus* on flowers; *Anoplodera sexguttata*, in bramble blossom; *Callidium variabile*, under bark; *Liodes orbicularis* and *Anisotoma nigrita*, by sweeping under fir trees; *Salpingus æratus*, a small colony under bark of an elm log; *Conopalpus testaceus*, under bark of oak; and *Eirrhinus festucae*, by sweeping in a damp place. *Lina populi* was in the utmost profusion, not upon poplar or aspen, but on a low creeping plant, which I am not botanist enough to determine.—THEODORE WOOD, 23, Brodrick Road, Upper Tooting, S.W.: July 29th, 1895.

Coleoptera in Ireland.—During a visit to several Irish ports in H. M. S. "Northampton," between April 27th and May 21st, I took, among many others, the following species of *Coleoptera*, which may be worth noting.

At Queenstown—*Acupalpus dorsalis*, in marshy places; *Aleochara brevipennis* and *Megacronus cingulatus*, under stones, both singly; *Lema Erichsoni*, about half a dozen specimens on May 7th and 8th, by sweeping on weedy banks; *Apion Gyllenhali*, which occurred in every locality I visited, being rather plentiful at Bangor; *Sitones cambricus*, var. *cinerascens* (2); and remains of *Rhopalomesites Tardii* plentifully in beech, but the living insect was not to be found.

At Midletown, Co. Cork, on the afternoon of May 6th, I took *Monotoma spinicollis*, *Aphodius sticticus*, *Lema Erichsoni* (2), *Barypeithes sulcifrons*, *Phytobius 4-tuberculatus*, &c., chiefly by sweeping under some fir trees.

On May 13th and 14th, at Bangor, Co. Down, the following species were taken:—*Staphylinus pubescens* and *erythropterus*, in roads and on the wing; *Corymbites quercus* and var. *ochropterus*, with many intermediate forms, in great abundance by sweeping in grass fields; *Lema Erichsoni* (2); *Barypeithes sulcifrons*, not uncommon by sweeping under some trees bordering a marshy meadow, where I also had the good fortune to take three examples of the rare *Ceuthorrhynchus angulosus* on the afternoon of the 14th.

At Buncrana, Co. Down, a very promising-looking spot on the shore of Lough Swilly, my chief captures were *Dyschirius impunctipennis*, locally abundant in damp

sand on the beach in company with a rather dark form of *Bledius arenarius*; *Pterostichus vitreus*, *Trechus rubens*, and *Patrobis assimilis*, rarely under stones on high moorland; *Cilicenus lateralis*, sparingly; *Creophilus maxillosus*, in carrion and decaying seaweed; *Bledius spectabilis* and *Heterocerus marginatus*, common in sandy mud on the shore, the latter species varying to a handsome unicolorous dark fuscous form without any markings; *Otiorrhynchus blandus*, on the sandhills, and *O. rugifrons*, under stones on turf walls; *Sitones griseus*, a very large form, and *S. lineellus*, rarely on the sandhills, with unusually large and nearly white females of *Philopodon geminatus*; *Orchestes saliceti*, *Dorytomus hirtipennis*, and *D. pectoralis*, sparingly on young willows.—JAMES J. WALKER, H.M.S. "Northampton," Devonport: August 10th, 1895.

Coleoptera in Kent during June.—I spent nearly the whole of June on leave of absence at Sheerness, but found beetles decidedly scarce, chiefly owing to the persistently dry weather which prevailed during that month. Still, I managed to add a few interesting species to my list of *Coleoptera* occurring in the Chatham district, which now includes nearly 1400 species, more than two-fifths of the British list.

At Snodland and Cuxton I met with *Taphria nivalis* and *Ocypus pedator*, under stones on the chalk hills; *Anisotoma curvipes*, Schmidt (*macropus*, Rye), a fine ♂, in company with *A. punctulata*, by sweeping in a woody lane, miles away from any fir trees; *Telephorus translucidus*, sparingly in wood paths (also at Cobham Park); *Siliis ruficollis*, *Malachius marginellus*, *Cassida equestris*, *Donacia affinis*, and *Gymnetron veronica*, by sweeping in a marshy place close to Snodland; in this spot I also found *Anoplus roboris* rather freely on young alder shoots, and obtained a good series of *Centorrhynchus urticae* by persistently working at *Stachys palustris*, which had not yet come into flower. These last two insects were exceedingly local, each being confined to a space of a few yards in extent.

Heptaclacus villosus again turned up at Cobham Park in the precise spot where Dr. Sharp and I found it in 1889, and curiously enough, on the anniversary of that great haul of the species (*cf.* Ent. Mo. Mag., ser. i, vol. xxv, pp. 325, 359), but on this occasion it was in very scanty numbers.

Chattenden Roughs produced, among very many other species, both forms of *Lebia chlorocephala*, *Throscus elateroides* and *carinifrons*, *Telephorus figuratus* (common), *Saperda populnea* in abundance on some young aspens, *Grypidius equiseti*, *Liosomus oblongulus* (3); I also found this species here in March last, in moss, along with *Euryporus picipes*, *Dryocates coryli* (1), &c.

Cryptocephalus bipunctatus, var. *lineola*, occurred in profusion on some stunted hazels at Queendown Warren at the end of June, and in the same locality I took *Hydnobius strigosus*, *Phytacia cylindrica*, *Cryptocephalus bilineatus*, *Rhynchites pubescens*, &c.

I had one day's collecting at Deal, which was somewhat spoiled by a cool east wind, but on the banks of a ditch, at the back of the sandhills, I took no less than nine species of *Donacia* in a few minutes, viz., *bicolora*, *thalassina*, *cinerea* and *affinis* sparingly, and *limbata*, *simplex*, *clavipes*, *sericea* and *nigra* in abundance.

The only beetle worth mentioning from the Isle of Sheppey was *Bruchus canus*, of which I got a small series by sweeping on the edges of the cliffs.—ID.

Dyschirius obscurus, Gyll., at Lough Neagh.—The late A. H. Haliday took this species at Lough Neagh more than forty years ago, and his specimens are now in the Science and Art Museum, Dublin. Since that time no capture of it was recorded so that Canon Fowler (Brit. Col., vol. i) pointed out that it would probably have to be removed from the British list. In the Ent. Mo. Mag. of January, 1893, Mr. Champion mentioned that he had seen specimens of this species from the collection of the late Dr. Boswell Syme, but they were unfortunately without locality. In the summer of 1893 I captured a single *Dyschirius* at Lough Neagh which I submitted to Canon Fowler, but he felt doubtful about it, though inclined to consider it *D. obscurus*. Last year Mrs. Johnson found two specimens, but though I returned to the spot I could find no more. This year we were more fortunate, and succeeded in taking a good many. I submitted specimens to Dr. Sharp and Mr. Champion, and Mr. G. H. Carpenter kindly compared it with Haliday's specimens in Dublin and also forwarded it to Herr Reitter. All are agreed that it is *D. obscurus*, Gyll., though Dr. Sharp considers that it varies slightly from the continental form.

I am very glad to have obtained a satisfactory number of this beetle, for I had made so many expeditions for it in vain that I began to think it must be extinct. It is extremely local, and anything but plentiful where it does occur. It was in company with *Bledius subterraneus*, which was much more numerous than the *Dyschirius*.—W. F. JOHNSON, Armagh: August 1st, 1895.

[Mr. Johnson refers to me as pointing out that *D. obscurus* would probably have to be removed from the British list: this contingency is of course done away with by the confirmation of Haliday's specimens, apart from Mr. Johnson's re-discovery of the insect; at the same time it must be borne in mind that Dr. Sharp considers that it varies, even though slightly, from the continental form, and in a genus like *Dyschirius*, where many of the members are extremely closely allied, slight variations are of great importance in the determination of species. The British members of the genus require careful revision and comparison with authentic continental types, and if possible, with those of the original authors.—W. W. F.].

Note on the soaring of Endromis versicolor when alarmed.—I can quite endorse the statement made by Mr. C. G. Barrett in his book of "British Lepidoptera" as to the habit of "soaring," when alarmed, shown by *Endromis versicolor*, a habit which my friend Mr. Holland says he has never noticed in this species (*vide post* page 173). Mr. Holland is so keen and close an observer, and such an excellent field naturalist, that very few habits escape his notice, but that *versicolor* does soar when it is really alarmed I can most positively assert. My first introduction to this fine species was on April 12th, 1858, at Tilgate Forest, where I was in company of the late Mr. Charles Teater, who had two days before captured 119 males attracted by a virgin female. We had the same female out with us that morning, but having been bred several days before, she did not attract very strongly; the males came up, but were not drawn to the decoy female, they seemed undecided, and generally necessitated a chase to capture them. By sharp running I succeeded in capturing two males, and twice that morning, on striking at the moths and brushing them, they commenced to soar, and continued this rapid upward flight to such a height that they fairly passed out of view. I was much surprised, and called my companion's attention to this (to me) unusual flight; but he said it was quite a habit of the

species when really alarmed (see Ent. Weekly Intelligencer, vol. iv, p. 124). I have noticed the same habit on another occasion.—W. H. TUGWELL, 6, Lewisham Road, Lewisham, S.E.: *July 13th*, 1895.

Boarmia abietaria and *Dicranura bicuspis* at Plymouth.—On July 7th, 1894, I took a fine male *Boarmia abietaria* at rest on a larch tree in Bickleigh Vale; also on August 13th, 1894, three larvæ of *Dicranura bicuspis* feeding on alder in the Walkham Valley, of which one safely reached the imago stage as a male on May 26th, 1895.—H. W. BASDEN SMITH, 6, Hillsborough, Plymouth: *July 26th*, 1895.

Colias Edusa at Tonbridge.—To-day (August 1st) I caught a very fine ♂ *Colias Edusa*, it was an exceedingly fresh specimen. It has a rather deep black border, with the nervures at the edge of the wing distinctly marked out in yellow, and the whole border sprinkled with minute yellow dots rather more profusely than in most specimens I have seen.—P. L. BABINGTON, Walmer House, Tonbridge: *August 1st*, 1895.

Extraordinary aberrations in Lepidoptera.—In the course of a recent visit to Liverpool, when, as usual, spending much pleasant time with Mr. S. J. Capper and his fine collection of *Lepidoptera*, I examined two aberrations of so extraordinary a character that I cannot pass them by without special notice.

One is a male *Zygæna lonicera*. On the right side it is nearly normal, the hind-wing being a little shortened and quite pointed; while on the left the hind-wing is simply a duplicate of the fore-wing, being very nearly of equal length and having the same rich blue-green colour and red spots. The only respects in which it differs at all from the fore-wing on the same side is that the apex is slightly more rounded, and the base of the costal margin is somewhat arched instead of straight. The specimen is very perfect and beautiful, and presents an extraordinary appearance.

The other is a gynandrous *Lasiocampa quercus*, var. *callunæ*. The left side is male, of the usual rich, glossy, dark chocolate, with the ordinary orange-yellow stripes, but the antenna on this side is provided with pectinations only one half the usual length; the right side is female with ordinary female antenna, and decidedly larger fore- and hind-wings, but the colour is also rich chocolate, not quite so deep nor so glossy as on the male side, but of a very rich colour, while the yellow stripe though present on the fore-wing is absent from the hind, producing altogether a novel and startling effect. The abdomen of this specimen is much shrunk and twisted, and divided in sex, a clasper being clearly visible on the male side. Both specimens were obtained from Yorkshire.—CHAS. G. BARRETT, 39, Linden Grove, Nunhead, S.E.: *August*, 1895.

British locality for so-called Solenobia triquetrella.—In his most interesting notice of the occurrence in Britain of *Solenobia Wockii*, my friend Mr. C. G. Barrett (*ante* p. 164) says, "For many years we have heard nothing of the cases which he [Edleston—E. R. B.] used to find on large stones of millstone grit on the moors (in North Wales?), which were understood to produce *S. triquetrella* . . .," but from the following evidence I think it is quite clear that the cases in question used to be collected, not in North Wales, but in Lancashire.

In the Ent. Wk. Intel., v, 146-7, Mr. R. S. Edleston, writing from Bowdon, near Manchester, on January 17th, 1859, says, "The cases of *inconspicuella* are found here on beech trees . . .," and begins the following sentence with "The cases of *triquetrella* are found on large millstone grit stones on the moors . . .:" this can only refer to the Lancashire moors, for otherwise he would doubtless have recorded the particular locality, as is the case when he goes on to mention allied species found in "North Wales" and "Cheshire." The heading of Edleston's note, which runs, "On the *Solenobia* of Lancashire, &c.," would, if written by him, prove of itself that Lancashire was referred to unless it was otherwise stated, but I expect it was written by Mr. Stainton, so the point must not be pressed. In the "Manual," however, vol. ii, 286 (published March 1st, 1859), Stainton referring *certainly* (as is evident from a comparison of the two passages) to this so-called *triquetrella*, says distinctly "Mr. Edleston believes we have a third species occurring near Manchester [these italics are mine—E. B. B.]; the larva under stones on the moors"—EUSTACE R. BANKES, The Rectory, Corfe Castle: July 2nd, 1895.

[My friend Mr. Bankes is undoubtedly correct in his opinion. My suggestion of "North Wales?" was a mere guess. When at Liverpool the other day Mr. Gregson assured me that the *triquetrella* cases were found on the moors near Manchester.—C. G. B.].

Strange choice of food by larvæ of Dasycampa rubiginea.—As the imagines of *Dasycampa rubiginea* mentioned ante p. 128, kindly obliged me with ova in the spring, I have lately had the pleasure of rearing a small brood of larvæ, which thrived remarkably well on dandelion. When they were nearly full-fed, I placed on the surface of the soil in the cage, just beneath the fresh dandelion leaves, some dead, curled and *very* hard and dry alder leaves, gathered last autumn and kept in a dry room ever since. Imagine, therefore, my surprise, when next supplying the larvæ with food, at finding that some of them had actually eaten parts of the dead alder leaves in preference to the juicy ones of the dandelion! The alder leaves were not removed from the cage until the food was again renewed, by which time but few remains of them were left, the larvæ having treated them as they do the dandelion leaves, devouring not only the thinner portions but also the veins and parts of the midribs. The remnants of the alder leaves were by then soft and damp, owing to the moisture in the soil below and in the dandelion leaves above them, but when the leaves were first attacked by the larvæ, they must have been still more or less hard and dry, and I cannot understand such a strange choice. Thinking that larvæ fed upon such victuals would not be likely to produce moths conspicuous for their size, and having made sure of the facts, I forbore to repeat the experiment.—ID.

Obituary.

Prof. Charles Cardale Babington, M.A., F.R.S., &c., was born at Ludlow in 1808, and died at Cambridge July 22nd, 1895. He was educated at St. John's College, Cambridge, and took his B.A. degree in 1830, and became M.A. in 1833. In 1861 he was appointed Professor of Botany in the University of Cambridge, and was elected Fellow of his College in 1882. By the death of Prof. Babington only one of the original Members of the Entomological Society of London (Mr. W. B.

Spence) remains. Of course he was best known as a botanist, and as the author of the "Manual of British Botany," which has passed through eight editions. He also wrote numerous other works on botanical subjects. But at one time he was an ardent entomologist, and it is probable that Entomology in his youth had more attractions for him than Botany. Between 1829 and 1844 sixteen papers of more or less importance on entomological subjects (especially *Coleoptera*) are credited to him, but probably nothing entomological issued from his pen after the latter date, though his botanical studies appear to have been occasionally varied by archæological and antiquarian researches.

Prof. Carl Eduard Adolph Gerstäcker, M.D.—It is with much regret we notice the decease of this prominent German Entomologist on July 20th last at Greifswald, at the age of 67. He was educated for the medical profession, and took his degree, but probably never practised, preferring to devote himself to Zoology, and especially to Entomology. For many years he was Keeper of the Entomological Department of the Berlin Natural History Museum, and also Teacher of Zoology in the University of that city; but about the year 1876 differences with the then Director of the Museum induced him to resign his appointments at Berlin, and he subsequently accepted the Professorship of Zoology at Greifswald, which he held until his death. Gerstäcker was a most industrious and thorough worker in all departments of Entomology, and of *Arthropoda* as a whole. Much of his work took the form of monographs of groups or genera, and his published papers at the time of his death were very numerous. He rendered infinite help to his fellow students by compiling the entomological portion of the German "Bericht" (the forerunner and subsequent contemporary of the English "Zoological Record") from the year 1853 down to 1867. Amongst his principal separate works may be noticed a "Monographie der Endomychiden" (1858); the *Arthropoda* in the "Handbuch der Zoologie" (1863), an admirable *résumé* of the subject marked by much originality of treatment; and the *Arthropoda* in Bronn's "Klassen und Ordnungen der Thier-Reichs," but this latter, commenced in 1866, proceeded very slowly, and at the time of his death we think he never got beyond the *Crustacea*, and that even these were not completed. We have no space to notice his published papers in any detailed manner. In 1873 he brought out a remarkable memoir, entitled "Zur Morphologie der Orthoptera-amphibiotica," a term he employed to cover those Pseudo-Neuropterous families in which the early stages are aquatic. Most of his later papers were on the megalopterous division of the *Neuroptera* (= *Planipennia*, Rambur), in which he described many new forms. His comparative isolation at Greifswald in his later years placed him at a disadvantage. His descriptions were usually full and clear, and if (as is sure to be the case) many of his more recently described species fall as synonyms, the fact should be attributed more to the incompleteness and crudeness of his predecessors than to him. To posterity the name of Gerstäcker will take a prominent position amongst the entomologists of the second half of the present century, and we had hoped that position might have been maintained into at least the first decade of the next.

Jules Ferdinand Fallou died at his residence in Paris on June 19th, 1895, aged 83. Commencing as an artisan, by his skill and diligence he gradually established for himself a business and reputation as a surgical instrument maker of the

highest order. Some years ago he relinquished active business life in favour of his son (known as an Hemipterist), and during the summer months it was his custom to retire to a cottage he possessed at Champrosay (Seine et Oise), where, surrounded by forests, he devoted himself entirely to Entomology, of which he was passionately fond from his youth, but which in early life could only be pursued on holidays. He gradually amassed a fine collection of European *Lepidoptera*, and latterly paid much attention to Economic Entomology generally, and especially to sericulture. Possibly he never wrote any extensive work, but his minor communications to the Entomological Society of France (of which he became a Member in 1858) would fill a bulky volume. His unfailing modesty and amiability endeared him to his colleagues in France, and there have been, and still are, those on this side who regarded him as a personal friend. The task of drawing up an extended notice of his life and works for the Ann. Soc. Ent. de France has been confided to his old friend Dr. Laboulbène, who will no doubt do full and sympathetic justice to his memory.

Reviews.

TRANSACTIONS OF THE NEW ZEALAND INSTITUTE, 1894 (Extract from).
Wellington, 1895.

Art. i.—Synoptical List of *Coccidæ* reported from Australasia and the Pacific Islands up to December, 1894. By W. M. MASKELL, Registrar of the University of New Zealand, Corr. Mem. Roy. Soc. of South Australia, pp. 1—35.

Art. ii.—Further *Coccid* Notes: with Description of New Species from N. Zealand, Australia, Sandwich Islands, and elsewhere, and Remarks upon many species already reported. By the same Author. pp. 36—75, and 7 plates.

No. i will be very useful as bringing into one view references to the descriptions and accounts of all the *Coccids* of the regions mentioned that have during many years been published in different places.

No. ii is in the author's usual lucid style, and if his criticism and remarks are at times trenchant and emphatic, he gives good reasons for the faith that is in him. Under the head of *Frenchia semioculta*, n. sp., which inhabits a species of *Casuarina*, in Australia, the author reverts to "the production of cavities in plants" (a subject first brought under notice by him in this Magazine, vol. i, 2nd ser., p. 277, 1890), saying, "Can anybody suggest an explanation of the burrowing powers of insects such as this? Here is an insect absolutely, in its adult state, devoid of any visible organs, except its rostrum and setæ, and yet it is precisely in that adult state that it works its way deep into hard wood and digs out a cavern for itself. Before impregnation by the male it lies scarcely buried by the outer bark of a twig; at gestation it is found deep down in the wood. It is, of course, easy to say that the thing must be done 'by some chemical action;' but what action? what chemical product? what secreting organ exists for the purpose?"

THE NATURAL HISTORY OF AQUATIC INSECTS: by Prof. L. C. MIALL, F.R.S. with illustrations by A. R. HAMMOND, F.L.S. 8vo, pp. 395. London: Macmillan and Co. 1895.

We commend this book to our readers, and especially to those with a taste for

physiology and anatomy. It is divided into thirteen chapters with introduction, and each chapter mostly treats on a separate subject. All the details are given in the clearest possible manner, and the illustrations in the text are excellent, and do credit to Mr. Hammond's well known skill as a delineator of microscopic preparations. Prof. Miall has taken De Geer, Lyonnet and Réaumur as his models, and gives interesting sketches of the lives of these great masters. Much of the text that is not original is also derived from their works, and especially from Réaumur. If there be a fault it is, that in our opinion, some more modern authors have scarcely received commensurate notice.

ABSTRACT OF PROCEEDINGS OF THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY for the year 1894, together with the PRESIDENT'S ADDRESS. 8vo, pp. 136. Published at the Society's Rooms (Hibernia Chambers, London Bridge). 1895.

This bulky pamphlet brings out in detail the large amount of work done in one year by the old established and flourishing local Society that issues it. Most of it naturally concerns matters connected with our own islands, but the Alps of Europe, Queensland, and even the United States have been made to furnish part of the materials. The President in his Address says, with regard to the "Act to amend the Wild Birds' Protection Act, 1880:"—"What is sadly needed is a law to make penal the destruction of those distinguished visitors in feathers who cannot alight in our fields or woods, or even fly over them, without falling victims to some miserable gunner;" but we fail to find any allusion to the concerted destruction of our local Butterflies that is going on from year to year, and which (in at least one instance) will result in speedy extinction. This is just the sort of subject that should be taken up by a Society such as the "South London."

Societies.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY:
July 11th, 1895.—T. W. HALL, Esq., F.E.S., President, in the Chair.

Mr. Fremlin exhibited a long and variable bred series of *Phorodesma smaragdaria*, Fb., all of which were set with the aid of a blowpipe; also a bred series of *Geometra papilionaria*, L. Mr. Oldham, a *Sirex gigas*, L., from Wisbech, and a number of *Lepidoptera* taken during the Society's field meeting at Oxshott, June 29th, including *Eurymene dolabraria*, L., *Macaria liturata*, Clerck, and *Hadena pisi*, L. Mr. Adkin, a yellow variety of *Ematurga atomaria*, L. Mr. T. W. Hall, a pupa of *Sesia sphegiformis*, Fb., and a bred series of *Eupithecia valerianata*, Hb. Mr. Edwards, a specimen of *Papilio Sesostria*, var. *Xestos*, from South America.

July 25th, 1895.—The President in the Chair.

Mr. Hall exhibited a long and variable bred series of *Dianthæcia carpophaga*, Bork., the larvæ having been found on *Lychnis vespertina*; one specimen had all the usual markings nearly obliterated, and gradations led to the opposite extreme of a specimen with the markings much extended and intensified. Mr. Robson, a var. of *Smerinthus tilia*, L., without the usual dark band across the fore-wing, and an exceedingly pretty suffused form of *Zonosoma pendularia*, Clerck. Mr. Dennis, a

bred series of *Cosmia affinis*, L., from Horsley. Mr. Turner, a series of *Lycæna Egon*, Schiff., from Oxshott, showing amalgamation of spots on the under-sides, blue-splashed females, and one female undistinguishable on the upper-side from *L. Astrarche*.

August 8th, 1895.—The President in the Chair.

Mr. T. W. Hall exhibited specimens of *Hadena oleracea*, L., in which both the reniform and orbicular stigmata were scarcely to be traced. Mr. Adkin, a series of strongly marked *Eupithecia tenuiata*, Hb., from Drogheda. Mr. South, a number of series of species taken near Macclesfield during the present season, including four forms of *Xylophasia rurea*, Fb.; all forms of *X. monoglyphæ*, L., except the very dark Durham form; *Miana strigilis*, Olerck, were all dark, not a single type form having been taken; and two forms of *Hepialus velleda*, Hb., with var. *carneus* taken at different elevations: he also remarked on the absence of melanism in a district apparently favourable for it, and stated that he had only obtained one black *Phigalia pedaria*, Fb., a female, and one var. *Doubledayaria*, St., of *Amphidays betularia*, L. Mr. A. E. Hall, a specimen of *Argynnis Adippe*, L., var. *Cleodora*, Och., and a remarkable *Triphæna comes*, Hb., with intense black markings. Mr. Moore, a specimen of *Epinephele Janira*, L., with a considerable increase of the fulvous area, and an Orthopteron of the genus *Petasia* from South Africa. Mr. Frohawk, a grand series of under-sides of *Epinephele hyperanthus*, L., showing all gradations from var. *arete*, Müll., to var. *lanceolata*. Mr. Turner, a var. of *Euchelia jacobææ*, L., with a small additional spot, and other *Lepidoptera*.—H. J. TURNER, *Hon. Secretary*.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: July 15th, 1895. — Mr. P. W. ABBOTT, Vice-President, in the Chair.

Mr. R. C. Bradley referred to the fungus-killed *Melanostoma scalare* showed at the last Meeting; he had sent specimens to Mr. McLachlan, who said the fungus was *Empusa conglomerata*, a species found in America and Germany on *Tipulidæ*, but not hitherto found in Great Britain. A discussion following, Mr. Wainwright said he had found several lots at Sutton on grass heads and dock flowers, and one specimen on *Equisetum*; he had also taken specimens on the wing, which developed the fungus on the way home. Mr. Martineau said he saw a specimen at Bridgnorth with the fungus well developed while the insect was on the wing. Mr. Wainwright showed *Therioptectes tropicus*, var. *bisignatus*, from Sutton, together with a specimen of the type form from near Stroud. Mr. Abbott, a number of moths taken in Wyre Forest at Whitsuntide, *Macroglossa bombylifformis*, *Cymatophora or, duplaris* and *fluctuosa*, *Acronycta ligustri*, *Tephrosia extersaria*, *Asthena Biomeri*, and others. Mr. G. H. Kenrick, *Hadena genisteæ* from Kingswood, also *Nola cristulalis*, *Melanippe hastata*, *Macroglossa bombylifformis*, and other *Lepidoptera* from Coombe Wood, near Coventry. Mr. Martineau showed *Chelostoma florissomne*, *Hippoboscæ equina*, and other insects taken in the New Forest at Whitsuntide by Mr. Chase. Mr. Bradley, *Helophilus transfugus* and *frutetorum* from Sutton Park, and remarked upon the unusual abundance of the genus there this year; he had taken good series of both the above, while before he had never taken *transfugus* and only a few *frutetorum*.—COLBEAN J. WAINWRIGHT, *Hon. Secretary*.

ADDITIONAL NOTES ON INCREASING MELANISM IN BRITISH *GEOMETRIDÆ*.

BY THE LATE W. H. TUGWELL.

In the London district *ENNOMOS ANGULARIA* frequently occurs very dark indeed, not black, but of an unicolorous sooty-brown, a very striking variation from the ordinary type. This form was I believe first found in Hyde Park.

NYSSIA HISPIDARIA.—This species shows a most decided tendency to become melanic. In 1888 I bred a long series from Richmond Park parents, and fully fifty per cent. were of a decided melanic type, both males and females; fully as dark as any of the Yorkshire *P. pilosaria*, in fact, about the same tone of colour as this species from Shipley, spoken of as black, the colour being sooty.

HEMEROPHILA ABRUPTARIA.—This species in the London district is occasionally found quite black.

BOARMIA ABIETARIA.—Amongst the dark yew trees on Boxhill and Mickleham Downs, where this species is fairly common, the dark and black type is quite the form of the district, in fact, you rarely breed but this melanic type. The red coloured specimens are rarely or never seen there now. These black insects are extremely delicate, the slightest rub denudes their scales and spoils the beauty of the specimens for the cabinet.

TEPHROSIA PUNCTULATA.—I possess a melanic specimen of this species, given me by the late Mr. Thomas, of Rotherham, Yorkshire.

VENUSIA CAMBRICA.—I possess three fine specimens of the melanic form of this insect; they were taken at Rotherham, Yorkshire, and presented to me by the late Mr. Chas. Thomas, of Eastwood Vale. Evidently this form is very rare, as Mr. Porritt tells me he has not been able to obtain it as yet in Yorkshire, so I may congratulate myself on possessing three quite perfect examples.

HYBERNIA LEUCOPHEARIA.—Of this most variable species, so common in Richmond Park, perfectly black specimens are to be obtained not unfrequently. They occur of every possible shade, from the deepest black and all tones down to pale grey. The black and white banded form is much more striking in appearance, and more readily detected on the dark bark of the old oak trees, and so perchance the quite black form the more often escapes detection, as it is easily overlooked.

STRENIA CLATHRATA.—This pretty species, which in the type is

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beautifully latticed with brown on a white or cream-coloured ground, I have as practically a black insect, only sparsely spotted with white dots. This form occurs occasionally in the district of Basingstoke.

LARENTIA MULTISTRIGARIA.—A melanic form of this occurs sparingly in Aberdeenshire.

EUPITHECIA CASTIGATA.—A black form of this species occurs commonly at Paisley, and was a puzzle for several years, and called the "Paisley pug."

EUPITHECIA ALBIPUNCTA, var. *ANGELICATA*.—This black form is not rare near York.

EUPITHECIA RECTANGULATA, var. *NIGROSEBICEATA*.—This black variety is quite the ordinary condition in the London district. We rarely see the green form now.

Greenwich : September, 1895.

DESCRIPTION OF THE LARVA OF *BOARMIA CONSORTARIA*.

BY G. T. PORRITT, F.L.S.

Another Geometer which came commonly to sugar, but not so abundantly as did *Tephrosia extensaria*, during the expedition of Mr. W. H. Tugwell and myself to Abbott's Wood, Sussex, in June, 1892 (see Ent. Mo. Mag., xxi, p. 65), was *Boarmia consortaria*. Eggs deposited by some of the specimens taken were bright green, and small for so large a moth. They hatched June 24th, and fed well on oak, birch, and willow, some of them being almost full grown by August 3rd, when I described them as follows:—

Length, about an inch and three-quarters, and slender in proportion; head, slightly narrower than [the second segment, notched, but not deeply so, on the crown, the lobes rounded at the sides, but flattened in front, giving the face a flat appearance. Body cylindrical, of fairly uniform width, but swollen a little towards both extremities; on the 6th segment are two prominent humps; two other, but much smaller, humps on the 12th segment; and still two more small ones, pointing horizontally, at the extreme tip of the 13th segment; skin smooth, but with a slightly wrinkled appearance.

The colour varies extremely in different specimens, but the variations are mostly among the brown forms.

Var. I has the ground-colour a pale glaucous-green, and through it the alimentary canal can be distinctly seen, and forms a darker green dorsal line; head yellow, but almost covered with pale brown marbling; the mandibles and a few small dots at the bottom of the side of each lobe, very dark brown; the humps on the 6th segment chocolate-brown, the smaller ones on the 12th segment paler brown; spiracles

large and distinct, white, encircled with very dark brown. Ventral area of the same colour as the dorsal surface, but having a pale pinkish stripe extending longitudinally through its centre; the legs marbled with pale brown like the head, anal segment and prolegs yellowish-brown, the extreme bases of the latter dark chocolate-brown. Judging from my larvæ reared from several batches of eggs, this is the least common form.

Var. II has the ground-colour brown, yellowish, or greyish, strongly marked or marbled with dark brown or red-brown; the top of the head in these forms having a pale yellow streak, edged above with very dark brown or black, and the head generally being much darker brown than in Var. I; the warty humps on the 6th and 12th segments are dark chocolate-brown, the tips in some examples being red; spiracles pale, encircled with very dark brown or black. The ventral surface partakes of the colouring and marbling of the dorsal area, but the broad central stripe is much more conspicuous than in Var. I; in some cases it is ochreous-brown, with smoky edging throughout its length; in others, generally the darkest larvæ, the ochreous is interrupted at intervals with patches of darker colouring. The legs and prolegs vary so much in the amount and position of the brown on them, that to describe any of them in detail would probably be misleading, so far as concerns the determination of casually captured larvæ.

Feeds on oak and birch, and in captivity also well on sawallow.

By August 23rd nearly all the larvæ had disappeared below the surface of the ground, and the moths, a very fine series, emerged from May 16th to nearly the end of July following.

Crosland Hall, Huddersfield:

September 12th, 1895.

ABUNDANCE OF *CULEX DORSALIS*,* Mg., AT ALDEBURGH.

BY A. PIFFARD.

One of the peculiarities of this pretty seaside town, which never fails to engage the attention of summer visitors, is the presence in vast numbers of a small species of gnat, which is always busy in doors and out of doors, in shade and even in bright sunshine, in inflicting a bite which has such a virulent effect on those unacclimatized, that but few hours elapse before each new arrival has the "mark of the beast" set on him.

The species is known by the inhabitants as the "Norway Mosquito," and I ascertained on enquiry that it had been abundant for at any rate the last 25 years. A tradition generally accepted here assigns its introduction to a particular yacht which used to ply between this port and Norway. Curious to know if there was any probability of truth in this story, I submitted a few specimens to my friend Mr. Austen,

* *Culex dorsalis* is included in Mr. Verrall's List of "Reputed British Species."

of the British Museum, who kindly identified the species for me, and besides furnishing me with an account of all that is known of it, has supplied an admirable description of the characters of the insect, which I feel sure you will deem too valuable to let pass unrecorded.

Aldeburgh, Suffolk :

August 17th, 1895.

CULEX DORSALIS, Mg.

BY E. E. AUSTEN.

This species may readily be distinguished by the fact that the joints of the *tarsi* are shining yellowish-white at the *tip* as well as at the base. The *abdomen* is yellowish-white, with a pair of somewhat quadrangular black spots on each segment, sometimes indistinct at the tip, and leaving transverse bands on each segment and a narrow central line yellowish-white. The *thorax* is badly described by Schiner (*Fauna Austriaca, Diptera*, vol. ii, p. 626) ; in the ♀, at any rate, it is dark brown, thickly clothed above with short close-lying pile of a tawny hue, becoming whitish-yellow behind, owing to the junction of a pair of somewhat divergent narrow stripes of the same colour which run from the front to the hind margin. The anterior margin of the dorsum of the thorax is narrowly whitish-yellow in the centre, while the head is clothed with pile of a similar colour, with a narrow tawny spot on each side above. The bright-coloured thorax with its paler stripes, the chequered abdomen, and the banded tarsi, make this an exceedingly pretty little species.

Its length is about 5 mm.

As to its distribution, the species was described by Meigen (*Syst. Besch.*, vi, p. 242, 1830) from a ♀ specimen from the neighbourhood of Berlin. Walker (*List Dipt. Ins. in Coll. Brit. Mus.*, i, p. 3, 1848) mentions a single specimen from "England. From Mr. Walker's collection." This specimen (a ♀) is still in the General Collection of *Diptera* in the British Museum (Natural History). In vol. iii of his *Insecta Britannica, Diptera* (1856), however, Walker does not mention the species. Zetterstedt (*Dipt. Scand.*, ix, p. 3465, 1850) writes—"Found here and there in Southern Scandinavia in the months of June and September ; I have met with it sparingly at Lund and Lomma in Sweden ; in Denmark it has been taken not infrequently by Herr Stæger at Copenhagen. In the month of August Stægar found the larvæ in very great abundance in lagoons (*lacunis littoralibus*) in the Isle of Amager (on which Copenhagen is partly situated). In Central and Northern Scandinavia this species has not yet been observed, so far as I am aware, with the exception of a single ♀, taken on June 16th, 1849, by Herr Siebke in Töien, near Christiania, Norway, and forwarded to me." Schiner (*loc. cit.*) merely states that the

species is "somewhat rare." Van der Wulp (*Diptera Neerlandica*, *Eerste Deel*, 1877, p. 325) also says that it "appears to be rare," adding that the ♀ has been taken in August at Brummen, near Zutphen, and in the dunes near Vogelenzang, not far from Haarlem.

British Museum (Natural History):

August 16th, 1895.

NOTES ON COCCIDS FROM KENT.

BY E. ERNEST GREEN, F.E.S.

DIASPIR ROSEÆ, Bouché.

In a note on this insect, published in the *Ent. Mo. Mag.*, June, 1887, it is intimated that the species is somewhat rare in England. In reply to a query on the subject, Mr. J. W. Douglas informs me that he has had no notice of its occurrence since the date of that article. I have, however, received specimens from Mr. R. Newstead, taken at Chester in 1892. Its appearance this year in the Maidstone district may be worthy of notice. I find a large colony of the insects located on the stems of a wild rose tree in a garden at Bearsted, and another colony on a cultivated rose (*Gloire de Dijon*) trained against

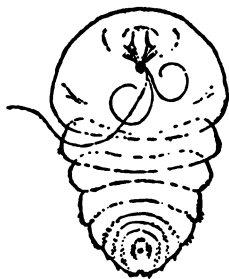


fig. 1

a wall in the same garden. In each case the scales are principally confined to the old stems. The ♀ scales contained, in July and August, adult insects of the normal form (fig. 1) and numerous eggs. In the specimens under examination the median pair of pygidial lobes only are conspicuous, the others being almost completely concealed within the margin of the body. I find the number of orifices in the grouped glands to

vary considerably in different specimens; nor are they generally symmetrical. The formulæ for six specimens examined are as follows, viz.:—

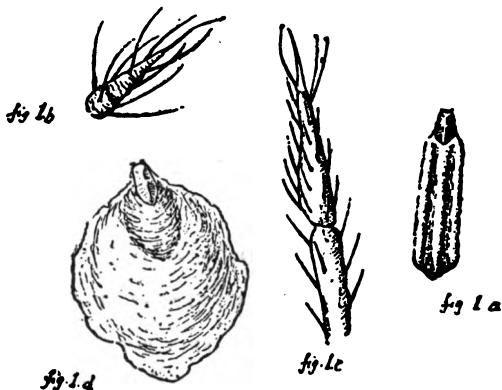
$\begin{pmatrix} 18 \\ 36 & 30 \\ 40 & 27 \end{pmatrix}$	$\begin{pmatrix} 18 \\ 18 & 29 \\ 14 & 26 \end{pmatrix}$	$\begin{pmatrix} 16 \\ 35 & 40 \\ 36 & 55 \end{pmatrix}$	$\begin{pmatrix} 16 \\ 32 & 29 \\ 29 & 29 \end{pmatrix}$	$\begin{pmatrix} 16 \\ 24 & 25 \\ 25 & 26 \end{pmatrix}$	$\begin{pmatrix} 15 \\ 27 & 29 \\ 25 & 28 \end{pmatrix}$
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other six specimens from Chester give the following numbers:—

$\begin{pmatrix} 23 \\ 24 & 17 \\ 28 & 24 \end{pmatrix}$	$\begin{pmatrix} 22 \\ 24 & 22 \\ 26 & 27 \end{pmatrix}$	$\begin{pmatrix} 15 \\ 21 & 27 \\ 27 & 24 \end{pmatrix}$	$\begin{pmatrix} 14 \\ 24 & 25 \\ 30 & 30 \end{pmatrix}$	$\begin{pmatrix} 14 \\ 34 & 30 \\ 30 & 26 \end{pmatrix}$	$\begin{pmatrix} 11 \\ 23 & 26 \\ 26 & 24 \end{pmatrix}$
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The lateral groups are almost continuous; but the divisions can be determined by following the contour lines that enclose each group.

The ♂ scales are strongly tricarinate (fig. 1a). The adult males appeared in August. They are of the normal Diaspid form; body rather slender; colour bright orange-red. The terminal joint of the antenna (fig. 1b) bears a stoutish knobbed hair at its apex. The feet (fig. 1c) have three knobbed digitules only, two on tarsus and one on claw.



An examination of the ♀ scales shows them, where not distorted by overcrowding, to be almost Chionaspiform. The pellicles are on the extreme edge, and the first pellicle very frequently projects beyond the margin (fig. 1d). In this respect (the position of the pellicles) I see little difference between *Diaspis rosae* and *Chionaspis biclavis*, Comstock; nor does the form of the ♂ scale help us. In both genera they are of the same form, viz., white and tricarinate. The same peculiarity of form of the ♂ scale may often be noticed in *Diaspis lanata*, Morg. & Ckll., in the early adult stage. In specimens of *D. rosae* sent to me by Mr. Maskell from New Zealand, the pellicles are in every case central and much darker coloured than in our English examples.

ASPIDIOTUS ZONATUS, Frauent.

This insect is fairly common here on isolated oaks in pasture land. The ♂ scales may be found singly or in small groups on the under-surface of the leaves. The ♀ scales of the second stage are clustered on the terminal branchlets at the base of the new year's growth and sheltered by the dry bud-scales. The mature ♀ scales are found on the older branches, but not in any quantity; and at this time of the year most of them seem to have been eaten out, possibly by some Coccinellid beetle. In this stage they are extremely difficult to detect, being covered by the dark smoky deposit that settles upon the bark. The whitish scars left by the fallen scales will sometimes show the locality of a colony of the insects.

The minute winged males (fig. 2) made their appearance at the end of August and early part of September. Their colour, bright clear yellow, with jet-black apodema, the mesothoracic plates with

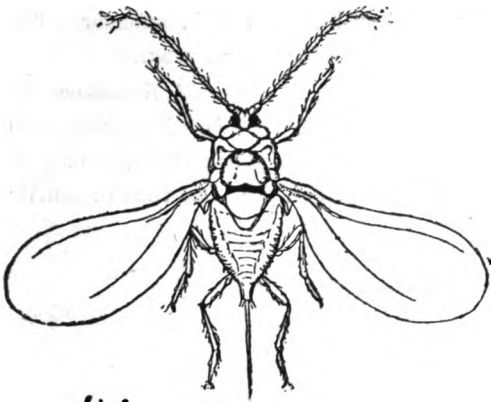


fig. 2.



fig. 2b



fig. 2a

brownish margins, legs and antennæ colourless. There is a prominent colourless ocellus on each side of the head, besides the four large black eyes. Feet with four knobbed digitules (fig. 2a). Terminal joint of antenna with three long knobbed hairs (fig. 2b), one at apex and two near the base. Total length, $1\frac{1}{4}'''$, of which the genital spike occupies $\frac{1}{2}'''$. The black apodema is a striking feature in this insect, and doubtless suggested the name of the species; for Frauenfeld's description was made from the male insect only.

ASTEROLECANIUM QUERCICOLA, Bouché.

This pretty little *Coccid* is also common on the oak branchlets. The ♀ of second stage I find in the same situation as that of *Asp. zonatus*. In this stage the colour of the test is yellowish-brown, or it



fig. 3.

may be better described by the tint known to water colourists as "brown-pink." There are on the dorsal surface of the test five longitudinal series of detached thin waxy plates (fig. 3), representing possibly the early larval test, which has become fissured along the lines of growth, and the parts separated by the secretion of fresh material. The colourless glassy fringe can only be seen in its entirety in this stage.

The older females occupy shallow depressions in the bark, as does their near ally, *Planchonina ventricosa* of Maskell.

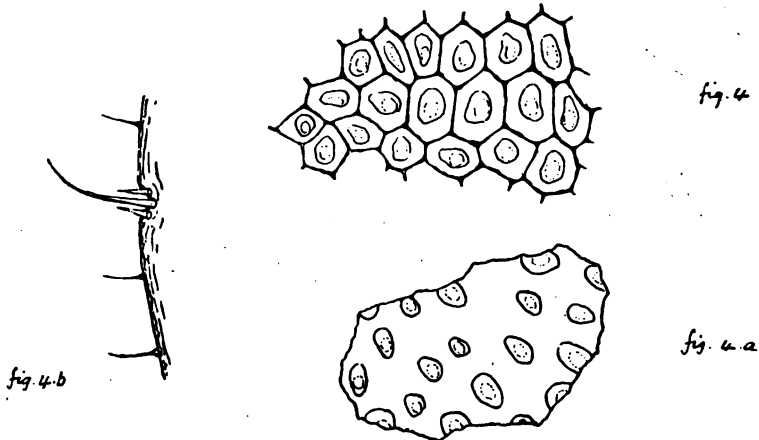
I have been unable to find the males or male scales of this species.

LECANIUM OLEÆ, Bernard.

I have found this species in considerable numbers upon an oleander plant in Yalding, Kent. The plant in question is kept in a

conservatory during the winter, but bedded out in summer. The insects have been noticed upon the plant for several years.

Signoret places this species in his fifth series of *Lecanium*, together with *L. cycadis*, *L. depressum* and *L. testudo*. It agrees with *depressum* in having large polygonal dermal cells (fig. 4), as may be well seen in specimens that have been boiled for some time in caustic



potash; whereas unmacerated or insufficiently treated specimens will show only the large oval nuclei (fig. 4a). The marginal hairs are simple, with bulbous bases. The three stigmatic spines are sharply pointed, the median one about three times as long as the others (fig. 4b).

MIMICRY OF COCCID SCALE BY A LEAF MINER.

While hunting for scales of *Aspidiotus zonatus* on oak, I came across numerous specimens of what I supposed to be a small species of *Chionaspis* on the under-surface of the leaves. There was a minute pellicle at the narrow anterior extremity; a suggestion of a second pellicle; and a delicate greyish scale widening behind (fig. 5). I was congratulating myself upon the discovery of Comstock's *Chionaspis quercus* in England; and confidently expected to find the single undivided median lobe peculiar to that species; but,

fig. 5 upon dissection, instead of a female *Chionaspis*, beneath the supposed Coccid scale was a minute caterpillar. In fact, my imaginary *Chionaspis* proved to be the work of the mining



larva of one of the *Micro-Lepidoptera*.* The terminal pellicle resolved itself into the empty egg-shell vacated by the caterpillar; the separated cuticle of the leaf formed the greyish scale, and the collection of frass near the anterior extremity suggested a concealed second pellicle. The mimicry was complete, though doubtless unconscious and accidental.

Bearsted, Kent: *September*, 1895.

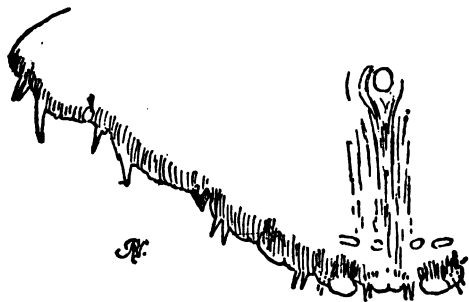
OBSERVATIONS ON *COCCIDÆ* (No. 13).

BY R. NEWSTEAD, F.E.S.,

CURATOR OF THE GROSVENOR MUSEUM, CHESTER.

CHIONASPIS BILOBIS, n. sp.

♀ adult dull crimson (after death). After treatment with caustic potash, black; but on examination with transmitted light, blue-black: this colour is apparently due to ova contained in the body, as older individuals without ova were rendered almost transparent in the potash. More or less pyriform, narrowed



in front. The pygidium (fig.) has the five groups of spinnerets distinctly separated; the anterior of 10; the anterior laterals of 14; the posterior laterals 10 to 15. Median lobes contiguous, much smaller than second pair; the latter, the largest, are united to the third pair. There are two short plates between the first and second pairs of lobes;

and following the third lobe are two more, and beyond them several others. Projecting a little beyond the third lobe are two very slender spines. Within the margin are several scattered pores.

Scale of the ♀ pure white, more or less pyriform, suddenly widened immediately behind the second moult; or elongated with sides parallel; very convex; larval and second moult yellowish, or frequently pure white.

Long, 1.5, wide, .75 mm.

Scale of the ♂ and larval moult pure white, with distinct lateral and central carinae. Many of the specimens have numerous very coarse waxen threads attached to them, indicating a loose covering, as *Diaspis Boisduvalii*, Sign.

Hab.: on *Deverra scoparia*, Biskra, Algeria, March 2nd, 1895. Collected by the Rev. A. E. Eaton.

The continuity of the lobes as indicated above is the distinguish-

* *Diptera* f.—R. McL.

ing character of this species. In some others the unity of the lobes appears complete, as *Chionaspis quercus*, Comstock, and *Aspidiotus unilobis*, Maskell; but the greater number have the line of separation visible.

. *CHIONASPIS NERII*, n. sp.

♀ old adult ovate, widely rounded in front and behind. The anterior group of spinnerets consists of from 16—19, the anterior laterals 17—33, the posterior laterals 13—29. The marginal fringe (fig. 1) has the median lobes very broad, widely separated; second pair much smaller, with or without slight marginal indentations; third pair triangular, but almost obsolete. There are two very small spines below the median lobes, and one or more nearer the base of the pygidium; the first two plates overlap the outer margin of the median lobes, between the second and third lobes are three large plates, beyond these are two groups of five or six more. Within the margin on either side of median lobes are several short spines. Beyond the grouped



spinnerets are numerous pores arranged in three broad interrupted bands, widest at margins. The rudimentary antennæ are furnished with a single strong spine, and one or more exceedingly small pointed prominences (? spines). Abdominal and thoracic segments widely at margins and subdorsally with numerous short spines and pores.

Scale of the ♀ white, anterior portion sometimes dusky or straw-coloured. Larval and second moult more or less yellowish-white tinged with pale brown; the second moult distinctly raised, convex, and projecting beyond the scale. Ventral scale white, very thick, complete.

Long, 1.75—2.25, wide, 1.5—2 mm.

Scale of ♂, together with larval moult, white. I am unable to state whether carinate or not, as the only example is badly broken.

♀ early adult has the grouped spinnerets well developed, as in the old adult; but the marginal appendages of the pygidium (fig. 2) are very different. Many examples in this stage were badly infested with *fungi*, which had either arrested the development, or distorted the marginal appendages (fig. 3) to such an extent, that had they (as also the perfect specimens) been examined separately, they might have been considered distinct species. It is hardly necessary here to give a detailed description of these specimens, the figures alone will suffice. At the same time it is important to note the variation of form between the early and old adult and those infested with *fungi*.

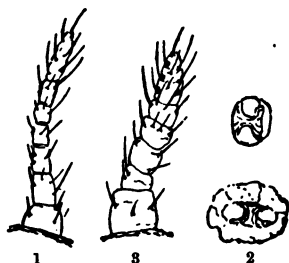
The early adults are about the size of *Ch. frasinii*, Sign. The old adults are very much larger than any species I have seen hitherto, and in other respects this seems a clearly distinct species.

Hab.: on *Nerium oleander*, L. Constantine, and Biskra Marsh, Algeria. June, 1894, and March, 1895. Collected by the Rev. A. E. Eaton.

Although this and the preceding species were not sent to me direct, I take this opportunity of expressing my gratitude to Mr. Eaton for kindly forwarding the specimens, and trust that others, equally interesting, await his discovery.

DACTYLOPIUS RADICUM, n. sp.

♀ adult subterranean, pale reddish-pink, very elongate, broad, ends equally and gradually narrowed. Antennæ of 7 joints (fig. 1); 1, 2 and 3 in length equal; 4, 5 and 6 shorter, the latter a little the longest; 7 longest, as long as 1 and 2 together; all the joints with many fine hairs. Mentum biarticulate, apical joint very short, with many fine hairs at margins; filaments very short, not reaching much beyond intermediate legs. Legs short; tarsi much shorter than tibiae; digitules to claw and tarsi simple. Anal ring of six hairs and three rows of almost circular discs. Anal lobes only indicated by a single long hair. Dermis with numerous fine scattered hairs and very small discs; the hairs in front longer and more numerous. In addition to the "small discs" are a great number of large curiously shaped pores or glands (figs. 2), irregularly placed, and having the central portion darker and stronger than the rest.



Long, 2—3, wide, 1—1.5 mm.

At period of gestation the ♀ completely envelopes herself in a very loose cottony material, in which the pale flesh-coloured ova are laid.

♀ second stage pure white (greenish-yellow after treatment with potash). Segments distinct. Anal segment with two white waxy appendages. Antennæ (fig. 3) of 6 joints; 1 and 6 longest; 2 shortest; 3, 4 and 5 nearly equal, 3 longest; all with fine hairs. Mentum long, biarticulate, with about four rather long hairs on either side at apex; unexpanded filaments reaching insertion of intermediate legs. Legs short; tibiae and tarsi about equal, each with two strong spines beneath. Anal ring with six hairs. Anal lobes very minute, with a single long hair surrounded by

several shorter ones. Dermis with four eye-shaped pores, two over rostrum and two near the end of the abdomen; there are also very numerous short spines having a bulbous base.

Long, 1, wide, .3—5 mm.

Hab.: chiefly on roots of sea pink (*Armeria vulgaris*, Willd.), but also on grass. St. Seiriol or Puffin Island, Anglesea, North Wales, June, 1895.

I was only fortunate in finding three adults, but the immature examples were fairly common, and often occurred four or five inches below the surface; they were most numerous on isolated plants of the *Armeria*, growing fully exposed to the sun in the rock fissures. The adults were all found near the crowns of the plants, and almost directly after they were taken, began covering their bodies with the loose cottony material. Several specimens were found on grass roots, but they were more partial to the *Armeria*.

An aberrant form, in having but seven joints to the antennæ, and in this respect is like *Dactylopius* (*Bergrothia*) *Townsendi*, Cockll. (An. and Mag. Nat. Hist., 1893, p. 404), and *D. vastator*, Mask. (Trans. N. Z. Inst., 1895, p. 65). The large glands (figs. 2) easily separate it from these species. The eye-shaped glands in the second stage ♀ are almost identical with those in *Ripersia terrestris*, and for this reason I at first thought the species a *Ripersia*, but as the glands are not retained in the adult, and for reasons stated above, I think the species is more correctly placed in *Dactylopius*.

Chester: July 8th, 1895.

**SALDA MUELLERI, GMELIN, AN ADDITION TO THE LIST OF
BRITISH HEMIPTERA, WITH NOTES ON ALLIED SPECIES.**

BY EDWARD SAUNDERS, F. L. S.

In the pages of this Magazine for June, 1866 (vol. iii, p. 13) *Salda morio* was introduced as a new species to this country by Messrs. Douglas and Scott, on the authority of six specimens, "one taken in Scotland by Mr. Robt. Hislop, four at Scarborough by Mr. T. Wilkinson, and one by Mr. Somerville, locality not recorded." Since then it has only been recorded (so far as I know) from Whittlesea Mere (Dale), Loch Rannoch (Marshall), Brumstead Common, Norfolk (Edwards), Horning and Aviemore (Champion), Buxton (myself).

In the autumn of last year Dr. Reuter asked me to send him specimens of our *morio*, which I did, and he returned them as belonging to two distinct species—the female, which I had from Mr. Wilkinson's

collection, being *Muelleri*, Gmel., the others (males) taken by myself at Buxton, on the moors, being the true *morio*, Zett. Mr. Douglas has kindly lent me a ♂ and ♀ from his collection for examination, which are referable to *Muelleri*; these, I believe, were taken by Mr. Wilkinson, probably in the same locality from which my specimen came. Last night I received from Mr. Thos. McGregor, of Perth, a series of six specimens of *Muelleri*, taken near Ballinluig "at a high altitude;" and I have examined the specimens taken by Mr. Champion at Aviemore and Horning, and they are also referable to *Muelleri*. I am not able to say at present to which species the other specimens recorded belong.

I deferred bringing *Muelleri* forward till the appearance of Dr. Reuter's "Species Palæarcticæ generis *Acanthia* Fabr. Latr.," which is now published, and gives the characteristics of the two species; though superficially much alike, they are not difficult to separate by the following characters:—

MUELLERI, Gmel.

Black, surface not very shining, elytra distinctly and somewhat closely though irregularly punctured on the disc. Eyes in the ♂ larger, each being decidedly wider than the interval between them. Thorax wider, less constricted in front, its sides less straighter.

MORIO, Zett.

Black, surface very shining, almost as if burnished, puncturation of the elytra obsolete or nearly so. Eyes in the ♂, although large, not or scarcely wider than the interval between them. Thorax narrower, more constricted in front, its sides straighter.

In the same work Dr. Reuter distinguishes *palustris*, Douglas, from *pallipes* by its shorter form and by the duller surface of the elytra; of *pallipes* he says, "*Corium præcipue varietatum obscuriorum distincte oleo micans*;" of *palustris* he says, "*Corium totum opacum*;" but at the end of his description of the latter he says, "a varietati *dimidiati*, Curt., *A. pallipedis*, cui colore similis, vix nisi statura distincte brevior corporeque minore distinguenda." Under these circumstances it seems to me that very long series would be necessary to establish a species with such slender characteristics. Many of the species already known are so exceedingly closely allied, that, to my mind, they would be better treated as races, but they have mostly been taken in large numbers, and appear to keep their characters; possibly a study of their larval forms might throw some light on their specific values.

Dr. Reuter divides *Salda*, or *Acanthia* as he calls the genus, into several subgenera, of which four occur in this country. *Chiloxanthus*, Reut., of which *pilosus*, Fall., is our only representative; *Sciadopterus*, Am. & Serv., of which we have three species, *littoralis*, Linn. (so spelt by the original author), *Muelleri*, Gmel., and *morio*, Zett.; *Acanthia*.

in sp., which includes all our other species, except *Cocksii*, Curt., *ele-gantula*, Fall., and *cineta*, H.-S., which belong to his subgenus *Chartoscirta*, Stål.

The first of these subgenera, *Ohiloxanthus*, is partly founded on an inconstant character, viz., the existence of a fifth cell in the membrane; this fifth cell is formed by the subdivision of the fourth or external cell into two parts by a diagonal nervure. On examining my specimens of *pilosa* I find six with only the four ordinary cells and without any trace of a dividing nervure in the fourth; five of these are from Pegwell Bay, and one without locality. Then I have four, one from Pegwell Bay and three from Southwold, with the fifth cell fully developed; and one from Southwold with the dividing nervure extending from the external nerve of the fourth cell to about the centre of the cell, where it terminates.

I have sent specimens of our *pilosa* to Dr. Reuter, who was much interested in the variability of this character, and he observes that it will be necessary to rely on the other characters which he has pointed out as distinguishing this subgenus. Of these the principal are the remote ocelli, and the greater width of the pronotum in front.

The second subgenus which occurs here, viz., *Sciodopterus*, is distinguished from *Acanthia* in sp. by the short inner cell of the membrane, the apex of which is situated at a point much nearer the base of the membrane than the apices of the other three. The remaining British subgenus, *Chartoscirta*, is well defined by the closely approximated or contiguous ocelli, which are situated on a distinct elevation.

There is little doubt that *Salda* is one of the most difficult genera to deal with satisfactorily, and the subgenera given by Dr. Reuter, although necessarily based on slight characters, will be a very useful help to students in the determination of the species.

There is one error which I feel bound to point out, viz., that *Salda* (*Chartoscirta*) *Cocksii*, Curtis, is throughout Dr. Reuter's work rendered *Cooksii* or *Cooksi*. The species was named in honor of Mr. Cocks.

St. Ann's, Woking:
September 4th, 1895.

Capsus laniarius feeding.—This species, like all the other *Capsidæ*, is credited with being a feeder on the juices of leaves, and I was therefore somewhat surprised yesterday to see one individual that was not a vegetarian. On the flower-umbels of a *Heracleum*, the stems of which were literally covered by larvæ of a pale green Aphid, the *Capsus* stood motionless, rostrum exerted and arched, the tip in the

body of one of the Aphids, and so gently inserted (after the manner in which Isaac Walton advises a hook to be passed into a worm), that there was no resistance by the victim. If this was the beginning of a feast there was an abundant supply of the delicacy to continue the revel, which, in the nature of things, could not last long.—J. W. DOUGLAS, 153, Lewisham Road, S.E.: *July 31st, 1895.*

P.S., August 1st.—To-day I witnessed the assault by a *Capsus laniarius* on one of the aforesaid Aphids, which, however, did not take it quietly, but at first resisted vehemently but ineffectually the rapidly exhausting effect of the insertion of the rostral lancet into its body. There were three others of the *Capsus* on the leaves of the plant, resting supine presumably after an Aphidian banquet.—J. W. D.

Immense swarms of Culices.—On every evening of the last ten days this road has been invaded by vast hordes of large *Culices*, the air thick with millions of them, at times charging in close column up the road, like a squadron of cavalry, at other times engaged in dancing up and down, after the manner of their race. This kind of exhibition takes place during the summer months, at intervals of a few weeks, but the number of performers varies greatly, last year, for instance, there were very few. They are a source of great amusement to the *profanum vulgus* during the hour before dark, during which period only they are active; the boys throwing their caps among the host, the adults cutting at them with sticks and whips. These gnats do not enter the house, even if the windows remain open, but a few of each sex now and then settle for a moment on the window, holding on by their four fore-feet only, the hindmost pair being elevated. Viewed thus "through a glass darkly," they cannot be described properly; I could only note that the colour is yellowish with brown stripes on the thorax, that the males have large plumose antennæ, that the abdomen is pale, banded with brown, and is much longer than the pale wings; in the female the antennæ are shorter with simple cilia, and the body scarcely longer than the wings; the legs in both sexes pale. The size and colour of the insects, as well as their habit of keeping always out of houses, distinguish them from the common and too-well known gnat, *C. ciliaris*.

Opposite to this house are several tall trees, and round the top of the highest one only, at the same hour of the evening that the periodical saltatory performances are going on in the road, enormous swarms of gnats congregate. At first they appear as a small black cloud curling about the ends of the branches, and soon, when the air is calm, rising in a close column, like smoke from a chimney, for a distance of some 20 or 30 feet, the bulk gradually becoming more grey and attenuated until lost to sight in the upward progress. When a breeze is moving, the insects, always preserving close order, are blown out laterally, and after skirmishing with the wind return to their cover among the top leaves of the tree. It is a wonderful sight. I apprehend the species is not the same as that of the acrobats in the road, but as, in the nature of things, I could get no specimens, I can only guess that it may be the *C. detritus* of Haliday, first described by him in the "*Entomological Magazine*," i, 151 (1833), to which my attention has been directed by Mr. R. H. Meade. Mr. Haliday (*l. c.*) wrote of the species as occurring about Holywood, Downshire, "In multitudes during the day among hedges on the sea-coast: in the evening in columns about the tops of trees, appearing like smoke at the distance of a furlong."

I think it is most probable that the birthplace of our swarms is the adjacent

river Ravensbourne. For them to assemble and frolic in such orderly and peculiar manner only about the top of the highest tree is not without parallel in other orders of insects; the exercise is evidently one of enjoyment, and most likely may be considered as a hymeneal celebration, and of specific importance.—*Id.*

Melanostoma hyalinatum, &c., in the New Forest.—The past summer seems to have been favourable to this fly, and I took nine males and nine females at Lyndhurst during the first fortnight of August. I then left, but it was still out, and I hear of its also having been taken in other counties, as well as in Ireland. A few years back I took a single male in the same locality, but was doubtful about the species, as the British Museum collection then only contained a female, and the sexes differ materially. Mr. Verrall informs me he has not taken this insect for about twenty-five years. I also saw a nice specimen of *Callicera anea*, which had been taken by a lady last June in a garden at Lyndhurst.—F. C. ADAMS, St. Ermin's Mansions, Westminster: September 13th, 1895.

On some Trent *Bembidia*, &c.—I have had the good fortune to discover, in July last, what may be at present the most southerly station in Britain for *Bembidium stomoides*. The locality is on the Trent bank, near the Lincolnshire village of Torksey. The insect is quite common, hiding under the flood rubbish or in the chinks of the clay bank. The locality, however, appears to be circumscribed, extending only for about a hundred yards along the bank; but in this space *Bembidia* abound, and along with *stomoides* we found *lunatum*, *femoratum*, *aneum*, *flammulatum*, *gilvipes*, *biguttatum*, and of course *littorale*. It might be worth while to record that I got a specimen of *Trox scaber* out of the clay bank, and of *Serica brunnea* under a stone. A few miles higher up the river, not far from the Lincolnshire village of Newton, I found some specimens of *Bembidium fluviatile* and *punctulatum*, and better still, three specimens of the local *Notiophilus rufipes*. By sweeping in the meadows on the cliffs here some interesting things turned up, such as *Edemera cœrulea* (a pair), *Corymbites metallicus* and *pectinicornis*, with *Lacon murinus*, and in flowers of *Cynoglossum* a very interesting *Longitarsus*, most probably *distinguendus*. My friend Mr. S. Pegler, of Retford, has also taken *Bembidium fluviatile* at Crow Park, on the Notts. side of the river, and *nitidulum*, Marsh., abundantly at Grove. He took also *Edemera cœrulea* in Clumber Park; and more strange still, came upon a colony of *Broscus* in sandy ground near Retford Station. It will be worth while to record as having occurred in my own village this year, *Aphodius sticticus* in April commonly, and a single specimen of *Tanymericus* swept in July.—ALFRED THORNLEY, South Leverton Vicarage, Lincoln: September 5th, 1895.

Boreus hiemalis at Clova.—On April 5th, 1895, whilst staying at Clova, I found several insects on the snow between the hotel and Loch Wharral, at 1500—2000 feet. Among them is a specimen which Dr. Sharp has identified as *Boreus hiemalis* ♀.—J. C. WILLIS, Cambridge: August, 1895.

[It seems to me an age since I last heard of the capture of this curious Panorpids in Britain. The late date is of course due to latitude and altitude.—R. McL.]

Deilephila livornica at Dover.—Upon raising a fallen volume on a bookshelf last week a fine female of this species was found beneath it, dead but still limp, the only injury being a slight mark on the thorax. It has been kindly added to my collection by Mr. Fenn of this town, who was the fortunate captor.—SYDNEY WEBB, Dover: September 14th, 1895.

Euchelia jacobaea in Roxburghshire.—As I have not heard of the Cinnabar moth having been before observed in Roxburghshire, it may be worth noting that on June 1st last one of the gamekeepers here handed me in a fine ♂ specimen of *Euchelia jacobaea*. He first observed it on the wing, and following it till it settled, captured it. It is a very large sized specimen, larger than any of a series I have from the coast. Much of the soil here is of a dry sandy loam, with no want of ragwort, which may partly account for its appearance.—A. ELLIOT, Caverton, Roxburgh, N.B.: August 27th, 1895.

Agrotis praeox away from the coast.—On the 21st instant I took up here, 1050 feet above sea-level, six miles as the crow flies from any salt water, and still further from any sandhills, an *Agrotis praeox* at light. This is, I think, a very unusual occurrence. The house overlooks miles of heather and bog land.—C. E. PARTRIDGE, Farehynys, Dolgelly: August 24th, 1895.

Unusual abundance in New Zealand of certain species of Plume Moths during the summer of 1894–1895.—The laws governing the relative abundance of different species of animals and plants are so obscure, and at present so little understood, that it is always desirable to record the appearance of any species when it occurs in unusual numbers. Last summer I noticed that the three species of forest-dwelling Plume Moths (*Pterophorus monospilalis*, *P. furcatalis* and *P. lycosema*) were phenomenally common here. *Pterophorus monospilalis*, a pure white species, one of the most delicately beautiful insects we have in New Zealand, was to be found in the utmost profusion, as many as three or four specimens being disturbed from amongst the ferns and dense undergrowth at once. *Pterophorus furcatalis*, distinguished by having a broad band of brown on the fore-wing reaching as far as the end of the posterior digit, was also extremely abundant, though not quite so common as *P. monospilalis*. *Pterophorus lycosema*, distinguished by having a broad band and both digits of the fore-wings brown, was commoner than usual, but much scarcer than either of the two preceding species. I ought perhaps to explain that, as a rule, these three insects are not very common, that is to say, one would not expect to meet with more than one or two specimens during a day's collecting in a favourable locality.—G. V. HUDSON, Wellington, New Zealand: July, 1895.

Melanism amongst Geometers.—Mr. Chas. G. Barrett's article upon the increase of Melanism amongst Geometers is of unusual interest, and of great importance in connection with the study of Evolution. No one with a less wide experience of insects than Mr. Barrett would be in a position to observe so interesting a body of facts and to grasp their real importance; we are, therefore, very much indebted to Mr. Barrett for bringing the matter before us, especially as his sympathies are, I

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believe, very little with the evolutionists. The facts appear to me to be of such importance, that it seems worth while to make them as exact and complete as possible, and I have therefore strung together the following few supplementary observations on the phenomena in the Midlands.

Tephrosia biundularia.—I have a series of this species, quite unselected, consisting of ten caught specimens and eleven bred from one batch of eggs: of these all the caught ones were taken during May and June, mostly at Sutton, two in Wyre Forest; the bred ones emerged chiefly during May, and the parent came from a Warwickshire Wood. Of these, nine specimens (four caught, five bred) are of the typical pale form, with the markings clear and distinct; the remainder (six caught, six bred) are dark, not of a uniform leaden hue, but dusted all over with smoky coloured spots, the markings almost obliterated, and with a pale subterminal line, usually edged on the inner side with a darker line. The specimens vary, some being very dark and with only the pale subterminal line showing, others paler and showing more of the usual markings. The caught specimens were taken in 1887 and 1888, and one very pale one in 1890; the others were bred in 1889.

Amphidasys betularia.—I have a series of fourteen quite unselected; some caught, some bred. Of these, four are quite black typical *Doubledayaria*, three were bred in 1888 (two Handsworth, one Knowle), and one in 1889 (Packington Park); then there are two specimens in which the dark markings are about double the usual size, marking a distinctly intermediate form—one was taken on The Wrekin in 1887, the other bred from a Handsworth larva probably in 1888. The remaining specimens are more or less typical, though one small male is a little dark. This places the arrival of the black form in the Midlands at least two years earlier than Mr. Barrett says, and I do not think either that we must call them "only casual specimens," as I have a fair proportion of my short series dark, and I know others were taken about the same time. I believe that on Cannock Chase at the present time the type is the exception, and I think that Mr. R. Freer, of Rugeley, has taken *Doubledayaria* there freely for years.

Hibernia progemmaria.—I have four specimens (♂) of this species (two, Sutton, 1888, two Handsworth, 1889), in which the fore-wings are a uniform dark brown with only a very faint trace of markings; the hind-wings are paler and show the markings, but are decidedly smoky in hue; the thorax and abdomen are dark, but not uniform in colour, somewhat peppered with light dots, but darker than the type. I also have several other specimens taken about the same time and places in which the dark colour has suffused only a portion of the wings, generally the basal half; I also have two females (Handsworth, 1887 and 1889) with the bodies quite black, and the wings also, excepting that the outside edges are paler. Somewhere about this same date too (1888?) I distinctly remember Mr. E. C. Tye taking a number of suffused specimens one night at light in Handsworth; I cannot, however, give further details of this. I have, unfortunately, not collected *Lepidoptera* of late years, and so am unable to tell what proportion of dark forms to typical specimens is to be found now, in this and the preceding species; but I hope that Mr. Barrett's article will lead to the recording of an increased number of facts, and enable us to ascertain exactly the rate and extent of the change or evolution of these species.—COLBRAN J. WAINWRIGHT, 147, Hall Road, Handsworth: September 15th, 1895.

Obituary.

William Henry Tugwell died at his residence in Lewisham Road, near London, on September 20th, aged 64, after a long illness from an obscure spinal disease, which had confined him to his room for many months. He had been long established as a pharmaceutical chemist, and was much respected in that capacity and also privately. As an entomologist his name is familiar to all British Lepidopterists, and his collection of *Macro-Lepidoptera* is one of the finest in existence, rich in rare species, and especially so in varieties. His earlier writings are mainly scattered through the pages of the "Intelligencer," and those subsequently through the current entomological periodicals; our present number containing posthumously what are probably the last notes he penned on his favourite subject. He will be greatly missed at the "South London" Society, in the affairs of which he took the warmest interest, and of which he was a past President. Personally he was genial, warm hearted, and a strong partisan on any subject in which he took an interest. In connection with this latter trait it may be mentioned that at the recent general election he had the bannisters of his staircase removed so that he might be carried down in a chair in which he was taken to the polling station. His death leaves a conspicuous blank in the large army of British Lepidopterists.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *August 19th, 1895.*—Mr. G. T. BETHUNE-BAKER, President, in the Chair.

The Secretary called attention to the fact, that this was the 100th Meeting of the Society. Mr. R. C. Bradley showed a number of insects taken on Cannock Chase at Whitsuntide, including *Leucorrhinia dubia* and other dragon flies, *Nomada ochrostoma*, *rusticornis*, *flavoguttata* and other Aculeates, and a few *Lepidoptera*; he also showed the specimens of the *Solenobia* which he and Mr. A. H. Martineau took last Easter at Wyre Forest, and which Mr. C. G. Barrett identifies as *Wockii*, and new to the list. Mr. A. H. Martineau showed Aculeates—*Myrmosa melanocephala*, one from Sutton Park, *Anthidium manicatum* from Bridgenorth, also a series of *Crabro dimidiatus* which he had taken at Sutton, together with the insects they had captured, which consisted of four specimens of a *Dolichopus*, one *Scatophaga*, and two different *Anthomyia*. Mr. P. W. Abbott, *Lithosia muscerda* and *Nonagria brevilinea*, with its var. *alinea*, from Norfolk. Mr. G. W. Wynn, a number of insects taken at Wyre Forest this year, including *Boarmia roboraria*, *Dipterygia scabriuscula* and *Xylophasia monoglypha*, one quite black, one dark with a pale triangular patch on the inner margin of the fore-wings. Mr. Wainwright, for Mr. C. A. E. Rodgers, one *Aplecta occulta* taken several years ago in Bagot's Park, Staffordshire, on sugar, one *Heliothis (Chariclea) marginata (umbra)* from Malvern, and one *Zeuzera asculi* from Handsworth; he also showed *Syrphus annulipes*, Zett. from a third locality, Lynton in North Devon; this species, which he found for the first time in this country last year near Stroud, has thus been taken in three widely separated localities, and this makes the fifth specimen.—COLBRAN J. WAINWRIGHT, *Hon. Secretary.*

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY:
August 22nd, 1895.—T. W. HALL, Esq., F.E.S., President, in the Chair.

Owing to the holidays and the storm the Meeting was unusually small. Mr. South exhibited smoky varieties of *Rumia luteolata*, L., taken this year near Macclesfield; also series or specimens of *Hypermercia cruciana*, L., *Tortrix cinnameana*, Tr., *Eupithecia venosata*, Fb., and *E. pulchellata*, St., from the same locality. Mr. Hall stated that he possessed similar varieties of *R. luteolata* from Scotland. Mr. Moore, series of the following *Arachnida* from St. Augustine's, Florida, viz., *Nephila clavipes*, *Atrous americanus*, and *Gasteracantha cancriformis*. Mr. West, of Greenwich, specimens of *Chrysomela gattogensis*, L., taken this year at Bookham and Boxhill, and remarked that he had never taken the species before. Mr. Turner, specimens of *Scodionia belgiaria*, Hb., from Oxshott and Shirley, and a series of *Hadena pisi*, L., bred from larvæ obtained at Barnes, and showing considerable variation from almost uniform reddish-brown to forms having much greyish-white marking. Several Members reported having seen or captured *Colias Edusa*, Fb., and one var. *Helice* had been taken in the Isle of Wight. Mr. Barrett stated that *Noctua* were very abundant in the North of England, especially *Orthosia suspecta*, Hb., which simply swarmed. *Noctua depuncta*, L., was also reported in some numbers.

September 12th, 1895.—The President in the Chair.

Mr. Jäger exhibited a melanic specimen of *Agrotis vestigialis*, Hufn., from North Wales, both upper and lower wings being black. Mr. Winkley, a species of *Dermestes* from Japan. Mr. Fremlin, a fine series of *Polia chi*, L., var. *olivacea*, St., from Cheshire, a bred series of *Phorodesma smaragdaria*, Fb., from Essex, and a bred specimen of *Prionus coriarius*, L., from Surrey. Mr. Tutt, a number of cases of a large species of *Psyche* from the Argentine Republic. They were mostly cocoons of the vermicular female, and contained either young larvæ or ova. He stated that a similar species had recently been described in America as causing much damage. Mr. Adkin, series of *Dianthæcia nana*, Rott., and *D. capsicola*, Hb., bred from North Devon larvæ, one of the former being of a rosy tinge; also a curious bred specimen of *Bombyx quercus*, L., var. *calluna*, Palm., with the outer half of each wing devoid of scales, while the fringes were perfectly developed. Mr. Hall, a male under-side of *Lycæna bellargus*, Rott., from Folkestone, having the left secondary destitute of spots, the other wings being normal. Mr. Tutt, a large number of *Erebica* and species of allied genera from the Alps, and read a most interesting paper on their affinities, habits and localities, making especial reference to the presence, absence and development of the eye-like markings; he also said that he had taken a large number of *Zygæna exulans*, Hüb., some being of the semidiaphanous Scotch form. Mr. Enock exhibited and described at some length the egg parasite, *Trichogramma evanescens*, which was only $\frac{1}{4}$ mm. in length. He stated that he had made some 180 drawings of the various details of its history and structure, and called attention to the economic benefit of his observations if the farming of these minute creatures was carried out on a large scale.—H. J. TURNER, Hon. Secretary.

SUPPLEMENT TO "A SYNOPSIS OF BRITISH *PSYCHODIDÆ*."

BY THE REV. A. E. EATON, M.A., F.E.S.

(Continued from page 213).

PERICOMA (Haliday, MS.), Walker (1856), part.

Syn. *Psychoda*, section B (Hal., MS.), Curtis, Brit. Ent., 745 (1839).—*Pericoma* (Hal., MS.), Walk., Ins. Brit. Dipt., vol. iii, 254 and 256 (excl. sp. Nos. 1 and 3); Schiner, Ins. Aust. Dipt., ii, 632; Van der Wulp, Dipt. Neerland., i.

The two species eliminated from the genus as originally constituted in Walker's work, appertained to the genus *Psychoda* as restricted (Hal., MS.) in the same volume. After their removal, *Pericoma* remained an assemblage of species of miscellaneous affinities, distinguished from *Ulomyia* by having no pouches in the wings of the males, while some, more closely related to *Psychoda*, differed from this last genus mainly in having numerous instead of few tenacular spinules on the inferior genital appendages of the males. Beyond increasing the number of described species, the Synopsis made no material change in the constitution of *Pericoma*; but by strengthening their representation, it caused the plurality of types included under this name to be clearly manifest. The Sections into which the British species were assorted in 1893 were not of equal systematic value, and cannot all rank as Sub-genera; and the further synoptical grading of the species was devised more with a view to their being easily identified than to their formal classification.

The British species are numbered here as in the Synopsis, to show their original sequence and to facilitate reference; and in Sections II—IV the supplementary or other principal characters employed in the revised classification are stated in tabular form for greater convenience.

SECTION I OF *PERICOMA*; British species, Nos. 1—7 and 12;
Algerian, No. I.Affinities with *Ulomyia* and Section II of *Pericoma*.

Refer *ante*, 2nd ser., vol. iv, p. 32, step 4a; pp. 120—1 and (No. 12) 123; vol. v, pls. i and ii, figs. P. 1—7 and 12 (details).

Wing: broadly-ovate; apex rounded at or very close to the end of the cubitus. In most species the postical meets the anal nervure at its entrance into the lower angle of the posterior basal cell: when they unite beyond the cell, their junction is not farther from that angle than the cell's apical width. Bristling hair restricted to the same primary and secondary nervures as in *Ulomyia*, and extended outwards farthest either (as in that genus) on the anterior radius, or (sp. Nos. 6 and 7) sub-

equally on this and the anterior pobrachial, but receding deeper on the posterior pobrachial than on the postical. Beneath, at the wing-roots, are some flattened hairs in both sexes.

Antennæ (*ante*, 2nd ser., vol. iv, p. 31, step 2, and 32, step 4a) with the last two joints of the flagellum in mutual contact; terminal apiculus sub-claviform or obovoid. Articular appendages to the flagellum, visible under a high magnifying power in certain species, accumbent, hardly half the length of the joints, and distinguishable from the hairs through being flattened and not spreading.

The species can be arranged, according to the character of the superior ♂ genital appendages, in three divisions:—

1st.—The said appendages as in *P. palustris* (*ante*, *loc. cit.*, p. 120, step 2).—British species, Nos. 1-3 and 12; Algerian, No. I.

2nd.—The same appendages with a short, stout, and obtuse terminal joint, and with a slender projection or spur from the under-side of one of the joints (*ante*, *op. cit.*, vol. v, pl. i, figs. P. 4 and 5).—British spp., Nos. 4 and 5.

3rd.—The same appendages with a strong, elongate, and claw-like terminal joint (*ante*, l. c., figs. P. 6a and 7a).—British spp., Nos. 6 and 7.

1. PERICOMA PALUSTRIS, Meigen.

Trichoptera palustris, Meig.,* Klassif. d. zweifl., Bd. i, 43 (1804); *id.*,* System. Besch. [ed. i], i, 105 (1818).—*Psychoda palustris*, *id.*, *op. cit.*, vi, 272 (1830), and [ed. ii] i, 83 [excluding tab. iii, 18†] (1851).—*Pericoma palustris*, Schiner, Fn. Aust. Dipt., Bd. ii, 633 (1864); v. d. Wulp, Dipt. Neerland., i, 317 (1877); Etn, *ante*, 2nd ser., vol. iv, 120, and vol. v, pl. i, P. 1 (neururation).

♂. Pubescence of head and body pure white, except for a slight yellowish tint between and just before the wings, and a greyish tint on the metanotum. Palpi brownish-black. Scape of antennæ pale yellowish, with white scales, "shot" with yellowish-white; flagellum greyish-black or brownish-black, with black hairs "shot" with whitish. Neururation dark throughout. Conspicuous amidst the wing-markings are some black hairs in the dark median fascia for the space of about 0.5 mm. from the radial bifurcation, and a smaller tuft of black prostrate hairs immediately beyond the bristling hair on the axillar nervure. Beyond the aforesaid fascia, the remaining bristling hairs are white; and next to them, before the dark apical marking, a few outspreading white hairs intervene, excepting on the anterior radius, where all of the white hairs are apt to be bristling. The sexual differences in colouring are extremely slight; but the black spot at the apex of the fore tibia, anteriorly (which is liable in the ♂ to become faint or to vanish almost completely in dried examples), is more distinct in the ♀, though less marked than the corresponding blackening at the tips of the hinder tibiae.

Hard to distinguish from *P. gracilis* in the net; but the present species is rather larger, and its more strongly marked wings give it a slightly more *spotted* appearance. In front of the ends of some of

† *Vide* sp. No. 14, *P. trifasciata*, Lat., *post*.

the nervures at the terminal margin, in both species, are often white streaks pointing forwards along the edge.

A local species found in proximity to the sources of feeble streamlets among *Apium* (*Heliosciadium*) *nodiflorum*, and on hazel or *Salix caprea*, &c., April and May.

12. PERICOMA GRACILIS, Etn.

P. gracilis, *ante*, 2nd ser., vol. iv, p. 123; vol. v, pl. ii, P. 12 (neururation).

This species was referred, in the Synopsis, to the 2nd Section of *Pericoma*, on account of the junction of the postical and anal nervures being situated nearly as far beyond the posterior basal cell as the cell's apical width. Having regard, however, to the pattern of the bristling hair on the wings, it should rank in the 1st Section; the form of the superior ♂ genital appendages consigns it to the 1st Division; and its hinder tibiæ having blackish hair at the tips place it beside *P. palustris*.

Antennæ and palpi as in *P. palustris*; the hairs white, glossed with light grey; 1st joint in palpus short; 2nd longer and subequal to the 3rd; 4th longer and more slender. Pubescence snowy-white in the ♂ on the head and fore part of the thorax, light grey between the wings, and white on the abdomen. In the same sex, anterior to the tegulæ and on the site of the pupal spiracle, is a small whitish thickened circular disc covered over by a rounded tuft of arched white hair.

A common species, beginning to appear at the end of April. Obtained in Scotland at Lake Maree by Mr. J. J. F. X. King (4 ♂, 5 ♀; June and July, 1890).

2. PERICOMA MUTUA, Etn.

P. mutua, *ante*, 2nd ser., vol. iv, 121; vol. v, pl. i, P. 2 and 2a (details).

The small extent of the light-coloured gloss on the fringe at the wing's apex aids in recognition of this species in the net, where otherwise it might be mistaken for *Ulomyia fuliginosa*, or another similar species of *Pericoma*, on account of their close resemblance in coloration and markings to each other. Compared with *P. palustris* and *gracilis*, there is less whitish hair on the wing; in them, on the axillar nervure, exterior to the fold of deflection, the bristling hairs are spaced with white, black, and white again, before the terminal outspreading black hair spot; in *mutua*, on the same nervure, the bristling hairs are blackish almost from the fold to the whitish spot at their outer limit preceding the terminal outspreading blackish hair. The dark fasciæ of the wing are of a nearly evenly diffused depth of tint, the densest hairs not constituting spots in proximity to the forks.

3. PERICOMA COGNATA, Etn.

P. cognata, *ante*, 2nd ser., vol. iv, p. 121; vol. v, pl. i, P. 3 (neururation).

Easily mistaken for *P. gracilis* in the field. Pubescence in ♂ snow-white on the head and anteriorly on the thorax, impure yellowish-white just in front of the wings, whitish-brown shifting, with change of posture, to darker posteriorly on the notum, and whitish shifting to greyish-white on the dorsum of the abdomen. Antennæ and palpi as in *P. palustris*; the hairs on the former, on change of posture, light grey; those on the latter grey. On the axillar nervure, exterior to the fold of deflection, the bristling hairs are spaced subequally with blackish and white, before the terminal outspreading hairs. The tint of the dark markings of the wing is nearly evenly diffused.

4. PERICOMA COMPTA, Etn.

P. compta, ante, 2nd ser., vol. iv, p. 121; vol. v, pl. i, P. 4 and 4a (details).

Very similar in style of coloration to the preceding species of this Section; but the wing markings are of rather a cooler grey, and are uniform in depth of tint. On the axillar nervure exterior to the fold of deflection, the bristling hairs are spaced with white, grey, and white, before the terminal outspreading hairs; and the outer of the white spaces is rather the shorter. During life, the play of light on the wing-membrane produces from certain standpoints a pearly lustre, that recalls to mind the wings of certain *Botyidæ*. The species is easily recognised in the field by the dark base of the first joint in the tarsi, leaving foreign species out of account.

Pubescence in ♂ snow-white on the head and in front of the thorax, white at the sides of the thorax and on the genitalia, and tinged with light yellowish-brown on the remainder of the notum and dorsum; the tips of the hairs between the wings, and the roots of those on the costal callus within the fold of deflection, change, when shifted about, to greyish-black. In ♀ the light yellowish-brown tint extends to all of the whitish parts. Antennæ as in *P. palustris*.

Mr. G. Verrall has taken this species in Sussex.

5. PERICOMA EXTRICATA, Etn.

P. extricata, ante, 2nd ser., vol. iv, p. 121; vol. v, pl. i, P. 5 and 5a (details).

Likely to be released from the net through being mistaken for *P. compta* aged and worn, owing to the dullness of its coloration. There is hardly any sexual difference in colour. The pubescence is dingy, where in *compta* it is white, and the tips of the hairs more readily take a grey or blackish tint when shifted about; the tint between the wings on the notum is also of a rather darker yellowish-brown, and on the costa within the fold of deflection the roots of the fringe blacken more extensively. Integument of the femora and tibiæ greyish, or, when dried, somewhat piceous, instead of light yellowish. Scape of antenna blackish, like the flagellum; the scales and hairs greyish-white, or, when dried, light brownish. On the axillar nervure, exterior to the fold of deflection, the bristling hairs are spaced with light greyish or dingy white, blackish or dark grey, and again with the lighter colour, before the dark outspreading terminal hairs. The wing markings are nearly uniform in depth of tint.

6. PERICOMA NUBILA, Meigen.

Psychoda nubila, Meigen (1818); Zet., Dipt. Scand., ix, 3704 [♀].—*P. nubila*, Schiner, Fn. Aust. Dipt., Bd. ii, 634 [♂]; v. d. Wulp, Dipt. Neerland., i, 320, pl. ix, 17 (neururation); Etn., ante, 2nd ser., vol. iv, p. 7, woodcut (neururation*), and p. 121; vol. v, pl. i, P. 6 (detail).

♂. Adorned on head, thorax, and legs, for erotic display. The greater part of the long tuft of hair on the frons curves upwards between the antennæ, but the remainder spreads forwards. On the notum, the short black velvety pile in front of the black transverse crest is frosted with white; laterally, below the crest and above the anterior coxa, is on each side a dense tuft of decurved black hair, glossed with whitish; the light ochreous transverse band extends backwards on the pleura below the wings to subopposite the anterior basal cell. Abdomen hirsute, with very light ochreous hairs in erect transverse rows, which, with change of posture, vary to flaxen, and towards their roots to greyish-black, so that from certain standpoints the hinder segments appear grey, with pale-tipped hairs, contrasting with the anterior segments. Palpi black, glossed with whitish. Antennæ more ornate than is usual; the verticils of hairs in this sex somewhat compressed (so that the hairs diverge obliquely for the most part upwards and downwards), and as far as the 7th joint loaded or intermixed with elongate scales, which, like the hairs, are denser and longer on the lower side than above; the hairs greyish-black; the scales changing colour, when shifted about, from white, yellowish-white, and light yellowish-brown, to black. Legs black, glossed with white on the hairs and scales in the following places:—in the fore leg, the extreme tip of the femur, the outer side (except at the apical edge), fringes, posterior border of the inner side, and some scales in front at the apex of the tibia, and in the tarsus the dorsum of the first joint down the middle and externally, as well as at the base and apex on the inner side, the dorsa of the 2nd and 3rd joints, also the scales at the tips of these joints beneath, and from certain standpoints the sole of the 2nd joint or of the 1st to the 3rd joints; in the hinder legs, viewed from the nearer side or from above, the tibial fringes, and for a short space below the knee the long hair between them, the apical borders of the tibia and first two tarsal joints, and (from above) the base of the 1st joint; viewed from the further side, the whole of the first two tarsal joints are glossed, excepting the longer hairs of the 1st joint. Ungues ferrugineous. Apical fringe of the wing yellowish-white, shaded with blackish-grey or black at the roots of the hairs, from about the anterior radius to about the anterior pabrachial; that of the alulæ, when erect, cream-colour or flaxen, shifting with change of posture to blackish; that at the base of the costa black at the roots, and glossed at the tips of the hairs with white, yellowish-white or whitey-brown.

♀. Pubescence of the head and greater portion of the notum (nowhere velutinous) light brown, with the tips of the hairs blackish-glossed, followed on the metanotum by a transverse black-brown band, set off by the light yellowish-brown erect hair of the abdomen and fringes of the alulæ. In the wing the whitish exterior boundary of the region of bristling hair is marked on the posterior pabrachial by only a few hairs at the most, which in both sexes are liable to be effaced.

* Reduced by the engraver from the author's drawing, and rather foreshortened at the base of the wing.

Antennæ grey-haired ; the verticils of hairs not compressed ; scales present only on the scape, and a very few on the 3rd joint.

By assuming that Meigen and Zetterstedt described this species from the female (since no mention is made by them of the frontal tuft of the male) it is allowable to follow subsequent authors in attributing the name *nubila* to the present insect instead of to the next species. The females of *nubila* and *trivialis* are indeed so much alike that it is hardly possible to be sure of the specific authenticity of specimens of this sex of either, should the locality of their capture be frequented by males of both species. Where males are concerned, even though the notum be denuded in extreme old age, *P. nubila* can nearly always be distinguished from *P. trivialis* by the marked difference in the frontal hair.

Attention has already been directed to the frequent confusion of this species with *Ulogyia fuliginosa* by Dipterologists. An admixture of both of them with some of *P. notabilis* is occasionally labelled *P. palustris*. As an extreme illustration of what frequently takes place to a smaller extent in cabinets, one collection may be referred to, wherein eighteen specimens of *P. nubila* are distributed among six differently named "species," three of which are consecutive. The key to many obscure pre-Schinerian "species" of *Psychodidæ* figures often enough in modern museums.

7. PERICOMA TRIVIALIS, Etn.

P. trivialis, ante, 2nd ser., vol. iv, p. 121, and vol. v, pl. i, P. 7, *a, b, d* (details).

Antennæ of ♂ conformable to those of *P. nubila*, ♀, and with the verticils of hair less decidedly compressed than in the ♂ of that species ; the scales on the scape and the few elongate scales among the hairs of the next joint, glossy pale yellowish ; the longer hairs on the flagellum black, and the shorter glossed with light greyish or whitish on change of posture. Palpi fuliginous, glossed with whitish or silvery-grey. Occiput with short appressed black hair. Pubescence on the mesonotum "shot" at the tips of the hairs with greyish-black ; that on the metanotum either (like the preceding) yellowish-brown or blackish-brown, contrasting in some postures with the erect brownish-yellow hair of the 1st abdominal segment and fringes of the alulæ ; but on change of posture these also shift to brownish-black.

In immature ♂ specimens the pubescence on the notum posterior to the light yellow patch on the pronotum is of a very dark brown tint, "shot" at the tips of the hairs with blackish ; in aged specimens the light yellow patch alluded to becomes brownish, like the remainder.

Abundant in the south of England, and collected in Scotland by Mr. King at Loch Lomond (1 ♀), and Loch Maree (5 ♂, 9 ♀).

(To be continued).

WAX SECRETED BY *LEPIDOPTERA*.

BY H. GUARD KNAGGS, M.D., F.L.S.

That certain *Hymenoptera* and *Homoptera* secrete wax is of course well known, but there does not appear to be any satisfactory record of *Lepidoptera* performing this function; I say *satisfactory*, because Kirby and Spence's extract from Molina's *Chili* (vol. i, p. 147) seems anything but clear, the diction being so ambiguous that the reader is left in doubt whether the writer really meant wax or resin. The passage, which will bear repetition, runs thus:—"In Coquimbo in Chili, resin, either the product of an insect, or the consequence of an insect's biting off the buds of a particular species of *Origanum*, is collected in great quantities. The insect in question is a small, smooth, red caterpillar, about half an inch long, which changes into a yellowish moth with black stripes upon its wings (*Phalæna ceraria*, Molina). Early in spring vast numbers of these caterpillars collect on the branches of the *Chila*, where they form their cells of a kind of soft white wax or resin, in which they undergo their transformations. This wax, which is at first very white, but becomes yellow and finally brown, is collected in autumn by the inhabitants, who boil it in water and make it up into little cakes for the market."

A year or so ago my friend Mr. Clark, of Hackney, was describing to me some cells of *Retinia resinana* which he had received from Scotland, and as his account of them reminded me of the above, I begged a few in order to investigate their composition. The result was that they were found to contain a very appreciable amount of wax, which formed the lining of the cells, as was demonstrated by dissolving off the resin by immersion in cold rectified spirit, a fluid which appears to have little or no effect upon the wax, so that the latter was thereby exposed to view. From this it seems to me to be pretty clear that the larva is furnished with the power of secreting wax for the purpose of protecting itself from contact with the tenacious semi-liquid resin exuding from the wound in the fir bud; otherwise, it would inevitably become involved in the sticky medium. What an interesting sight it would be to watch the formation of these cells *ab initio*!

Previously to this, however, I was aware that the imagines of certain *Lepidoptera* contained wax, though I had then formed no idea as to the part played by it in the economy of the insect's life, for it had occasionally happened, when cleansing greasy moths by methylated

ether, that the liquid became more or less turbid, and that a sediment was deposited upon the sunk stage, more especially after operating upon *Sesia crabroniformis*; but my first enlightenment as to the nature of the sediment was brought about in the following manner:— I had been experimenting on some greasy insects kindly sent to me by a correspondent for the purpose; these, among others, consisted of *Hepialus sylvinus*, *Hydræcia petasitis*, *Gortyna flavago*, *Nonagria typhæ*, and *Acronycta myricæ*, which, with the abdomen of a *Sphinx convolvuli*, had been immersed for a few days in "Benzine Collas," and subsequently transferred to methylated ether, the latter on the eve of an illness which confined me to my bed for some time, so that it was a week or two before the result was ascertained, when my surprise was considerable at finding the specimens, especially the Hepialids and *Hydræcia*, as well as the sunk stage, more or less (chiefly more) thickly coated with a white enamel which, at the time, defied my powers to dissolve it!

Under these circumstances, a friend of mine (a learned chemist, whose modesty is such that he forbids me to mention his name) offered to analyze the deposit, and in due course it was pronounced to be Myricin. Here, thought I, is the solution of the phenomenon: the *Acronyctæ* have absorbed a large quantity of wax from their ceriferous food-plant—*Myrica gale*. But, no! this theory was soon knocked on the head by my obliging correspondent informing me that these particular *A. myricæ* had been reared upon willow! and so, for a time, the presence of the wax became more mysterious than ever.

By the light of my *Retinia* investigations, I now incline to think that certain internal feeders, especially those which bore wood, as well as many which make subterranean galleries, possess the power of secreting wax for the purpose of waterproofing their tunnels, and thus protecting themselves against damp and vegetable exudations.

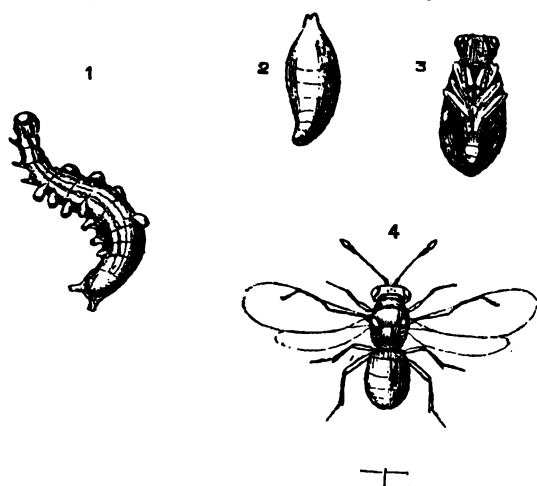
However imperfect these notes may be, it is my hope that they will interest some of your readers sufficiently to induce them to follow up the hint they convey; as for myself, it is my intention to return to the subject at some future day. Meanwhile, should any Lepidopterist or Coleopterist come across wood borings or subterraneous tunnels, or subterranean cocoons, or imagines of, say, Ghost swifts, Goat moths, or Musk beetles, which he does not require for his own use, will he please bear in mind that they would be very acceptable to me.

Folkestone: October, 1895.

NOTE ON THE TRANSFORMATIONS OF A *PTEROMALUS*.

BY THE REV. T. A. MARSHALL, M.A., F.E.S.

External parasites are much less numerous than internal, and offer peculiarities of some interest, while their situation greatly facilitates observation. I have lately had an opportunity of watching a brood of them, and a record of the fact may be thought interesting, as I



cannot find out that external parasitism has ever been remarked in connection with the *Chalcididae*.

On August 17th last I beat for entomological purposes a bush of *Rosa spinosissima* in my garden, from which dropped a *Noctua* larva (fig. 1), not quite full grown.

I saw immediately that it was infested

with thirteen parasites, adhering to various parts of its body, four in a row on each side above, and five on the under-side, in groups of two and three. The caterpillar was in an advanced state of marasmus, the anterior half of its body being much emaciated; it still clung to leaves, but was unable to eat or to crawl. It was difficult to ascertain the species, but by the help of Buckler's "*Larvæ*," I concluded it to be *Mamestra brassicæ*, notwithstanding its unusual food-plant—for hardly anything comes amiss to this somewhat pestilent caterpillar. The parasites (fig. 2) were $1\frac{1}{2}$ mm. in length, grass-green, smooth, shining, pyriform, and obtuse behind; their cephalic extremity (for it can hardly be called a head) was plunged into the body of the victim, the posterior and blunter end remaining free; they showed no perceptible rudiments of eyes, palpi, or other external organs, but close inspection enabled me to see a thoracic portion of their bodies, followed by faint indications of segmentation along the abdomen. At 10 a.m. on August 18th, the caterpillar was dead, and considerably shrivelled. Nevertheless, the parasites maintained their positions, draining away the remaining juices of the body. On the 19th they began to relax their hold, and two of them fell down upon the leaves which I had placed under them. On the 20th eight more released

themselves, and by the following morning all were free. They made no attempt to crawl, having, indeed, no legs, but a few, by some wriggling process, managed to remove themselves about half an inch, after which there was no more locomotion. They all began to discharge from their bodies a round mass of dark green excrement, evidently the whole of their colouring matter, for each one, as soon as this purgation was accomplished, ceased to be green, and became yellowish-white, the usual colour of maggots. Thus they remained during August 21st. On the 22nd, at different hours, they all moulted, and appeared as delicate white pupæ (fig. 3), lying on their backs, unprotected by any cocoons, and now showing the whole Hymenopterous structure of antennæ, legs, &c., packed into the smallest compass. A change of colour now rapidly supervened, the white passing in a few hours into grey, and finally into deep black. In this state they remained, lying about at random, till September 11th, when two assumed the perfect state. On September 12th the others followed their example, and I found myself in possession of thirteen *Chalcids* (fig. 4), all females, and exactly alike. My efforts to determine their species were not successful, but I pursued them through Förster's tables till I arrived with much certainty at the genus *Pteromalus*; as this contains an undigested and indigestible mass of hundreds of species, I could go no farther. All I can say is that my specimens have the common features of the genus, and are not far from *P. patulus*, Walk., one of the few which I have got named. If any gentleman in this or any other country can name the species I shall be happy to give him specimens. What seems chiefly remarkable (apart from the fact of external parasitism) is the absence of all covering or protection for these naked and helpless larvæ during their changes. If I had left them on their native tree, they must inevitably, on the death of the caterpillar, have fallen a distance of some feet on to the bare ground, and there remained exposed, without power to make cocoons or to burrow into the earth. It is also curious to observe the precise coincidence, in point of time, of the death of the victim and the maturity of the parasites, so that the supply of food ceased exactly when it was no longer required; if there had been four or five more parasites, the caterpillar would have been exhausted too soon, and the supply of nourishment would have failed before the parasites were completely grown. Instinct, or nature, has here provided some very nice adjustments to adapt variable means to a fixed end.

Botusfleming Rectory, Cornwall :
September 23rd, 1895.

OCCURRENCE IN EAST ANGLIA OF *MESOPHYLAX ASPERSUS*,
 REE., A CADDIS-FLY NEW TO BRITAIN.

BY ROBERT McLACHLAN, F.R.S., &c.

In a box of *Trichoptera* sent to me for determination by Mr. Claude Morley, F.E.S., of Ipswich, I find one ♀ example of what appears to be undoubtedly this species, taken by him on April 23rd, 1895, at an electric light in that town. It is of large size (expanse, 37 mm.).

A description of *M. aspersus* (as *Stenophylax aspersus*) is to be found in my "Revision and Synopsis," p. 132; and it was subsequently noticed in the First Add. Suppl., p. 10 (1884), where also certain pale forms originally considered varieties are given specific rank under the name *M. impunctatus*, McLach. It is there noticed also that a single example of this latter had occurred in Dumfriesshire, and still later a form, that may possibly prove to be a distinct species, discovered in Unst, Shetland, was described by me as *M. impunctatus*, var. *zetlandicus* (Ent. Mo. Mag., xxi, p. 154; cf. also King, l. c., 2nd series, vol. i, p. 178). Apart from its Scottish distribution, *M. impunctatus* is decidedly more northern than *M. aspersus*, which latter may be said to be Mediterranean, and, like some of its allies, mostly found in caves, apparently quite irrespective of hibernation, for I have myself taken it in a cave in the Eastern Pyrenees in July. There can, however, be little doubt that the species hibernates, and I think it probable (from the date) that Mr. Morley's example had done so; it is also certain that these insects are strictly nocturnal, and probably fly long distances at night.

As to the occurrence of *M. aspersus* at Ipswich. It may have been bred in East Anglia, but this I think hardly probable. It may have been one of those sporadic instances of natural introduction, the accounting for which is one of the most difficult problems in geographical distribution. It may have been brought up the Orwell in a vessel trading to the south of Europe, and in connection with this it occurs to me that the hold of a vessel might be likened to a floating cave.

Finally it should be remarked that it would have been more satisfactory had the insect been a ♂, and it may be that Mr. Morley, or some one else, can procure an English ♂, but I confess it will be an agreeable surprise to me should such an event happen.

Lewisham, London :

October 9th, 1895.

SPHECODES RUBICUNDUS AND OTHER BEES NEAR DOVER.

BY F. W. L. SLADEN.

At the edge of our carriage drive there is a short perpendicular grassy bank; it faces south-west, receiving the full rays of the sun during the best part of the day, and this perhaps makes it a specially favourite spot with the bees.

The first of these which I noticed this spring on the bank were the males of *Andrena nigroænea*. These were soon followed by their mates, which, during the middle and end of May, were busy excavating and carrying pollen to their burrows. *A. labialis* also nidificates in the bank, but this insect was not so abundant as *A. nigroænea*.

On May 20th, or thereabouts, the males of *Eucera longicornis* began to appear, and in a few days the bank was covered with them, hovering about, searching for their companions which had not yet emerged. As evening advanced, or during cool and cloudy days, they might be found collected in large numbers on the buds and under the leaves of a garden poppy growing in a flower bed close by.

It was on May 23rd, when the bank was swarming with the *Eucera* males, that I first noticed hovering about them one or two males of a *Sphecodes*. No *Sphecodes* males had been observed in England previous to this before July or August. I sent a specimen to Mr. Saunders, and he named it *S. rubicundus*. This bee, though found on the Continent, is a new species to Britain. The interest, however, did not end here. Without doubt the bank was the breeding place of the novelty, and as there has always been a difference of opinion as to whether the genus *Sphecodes* has inquiline habits or not, it seemed to be a favourable place in which to get light on the subject.

On June 15th, being a very bright day, I set myself to watch the bank. The *Sphecodes* males were getting scarce, and it was some time before I caught sight of one; like those I had noticed on previous days he was evidently searching for a female, for he hovered about in the same manner as the *Eucera* males. I soon discovered a female in the grass. She ran about investigating the holes, and in one or two burrows she remained a little while. Unfortunately I was unable to ascertain whether the burrows were those of *Eucera* or *Andrena*, but that they were not formed by the *Sphecodes* herself I have not the least doubt.

I did not have another opportunity of watching the movements of the *Sphecodes*, and soon after this they disappeared altogether from the bank. Besides the *Eucera* females no other bees appeared on the bank during the rest of the summer.

It seems pretty clear that the *Sphecodes* must have been either (1) an inquiline of *Eucera*, or (2) an inquiline of *Andrena nigroænea* or *labialis*, or else (3) that it was not an inquiline at all.

Noticing the *Sphecodes* males amongst such a number of those of *Eucera*, I at first thought that the first alternative was the correct one. Upon a little consideration, however, it seemed very improbable that it was so, for though the males of the two bees flew together, the females of the *Sphecodes* were disappearing as the *Eucera* females were emerging from the bank. In order for the *Sphecodes* to lay her eggs in the cells of *Eucera*, it would have been necessary for the former to be about when the latter was laying up her store of pollen; this was not the case.

With regard to the third idea, I did not see a *Sphecodes* female excavating, nor did I see one laden with pollen; the whole physique of the bee is against the idea, as also are the movements of the female, referred to above.

It must then have been an inquiline of one of the *Andrenæ*. The time of the appearance of the females would confirm this theory, for *A. nigroænea* was completing her store of pollen when the *Sphecodes* females were seen.

In order to further investigate the matter, I made a thorough search in the bank on August 24th, unearthing the following:—

- 126 *Eucera* cocoons containing larvæ.
- 54 *Eucera* cocoons containing fully developed bees of both sexes.
- 49 remains of dead *Eucera* bees in cocoons perforated with holes.
- 12 pellets of decayed pollen in *Eucera* cells.
- 270 old *Eucera* cocoons filled with earth.
- 1 larva from *Eucera* cell (which afterwards span).
- 75 fully developed *A. nigroænea* bees of both sexes.
- 9 pupæ of *A. nigroænea* rapidly turning into bees.
- 6 fully developed *A. labialis* bees (including one male).
- 5 males and 2 females of *S. rubicundus* (fully developed).

As the *Sphecodes* are of special interest, I will give the account of each one from my notes.

- No. 1, ♂; fell out of excavation just before I came on a group of *A. nigroænea*, and just before I had unearthed a *labialis*.
- No. 2, ♂; length, 6 mm.; unconsumed pollen left in cell; fell out from burrow a little before I came on a group of *A. nigroænea*.
- Nos. 3 and 4, ♂; fell out as I was excavating the above group.
- No. 5, ♀; found in cell in above excavation.
- No. 6, ♂; length, 11 mm.; fell out of cell just after I had taken a specimen of *A. labialis*; a large bee.
- No. 7, ♀; found in cell amongst group of *A. nigroænea*.

The *Sphecodes* were in all cases fully developed and not enclosed in cocoons. The cells which contained three of them were preserved. They were uniform in size, and though unlike the *Eucera* cells in size and shape, they were indistinguishable from those of the *Andrena*. Bees Nos. 2 and 6 differed very much in length, although they were both of the same sex, tenanted cells of equal size, and were apparently raised under the same conditions. The smaller seem to have had too abundant a supply of food, for he left a quantity of unconsumed pollen in his cell.

This experiment seems to prove pretty conclusively that *S. rubicundus* in this bank is an inquiline of one or both of the *Andrena* that nidificate there. It throws no light, however, on the life-history of our August-appearing *Sphecodes*. No doubt they are inquilines also; probably observation will prove the correctness of the old theory that they live with the *Halicti*.

It rather surprised me to find so many of next year's bees already in the perfect state, seeing that they were not destined to issue from the ground for nine or ten months. With the *Eucera* there is another point of interest. In the 180 tenanted cocoons that I dug up there was not one insect in the pupa state; they were all either larvæ or fully developed bees. It will be interesting to note whether the *Eucera* in both these stages will emerge from the bank as perfect bees next spring, or whether the larvæ will require another year in order to attain maturity.

Ripple Court, near Dover :

September 25th, 1895.

SPHECODES RUBICUNDUS, v. HAG.

BY EDWARD SAUNDERS, F.L.S.

The capture of this species as above related by Mr. Sladen is of special interest, as it not only is an addition to our list of *Hymenoptera*, but also is the only species of the genus whose male has been recorded in this country as occurring in the spring of the year.

In the south-west of France Prof. Perez records two other of our species as having spring males, viz., *spinulosus* and *pilifrons*, but there is no record of their males having occurred in Britain in the early

part of the year; the warmer conditions of the south of France are probably more favourable for the existence of males during hibernation, as Perez also says of *Halictus xanthopus* (the probable host of *S. spinulosus*), that the ♂ sometimes hibernates. If Mr. Sladen's observations be correct, *S. rubicundus* is probably an inquiline of *Andrena nigroænea*, which has only a spring brood, and, therefore, both sexes would probably remain in the burrows till the spring, and appear when the *Andrena* is making her cells, &c. The occurrence of males in the burrows in the imago state in August seems, at first sight, to be against this theory, but when it is remembered that *Andrena nigroænea* and *labialis*, as well as *Eucera* were dug up at the same time alive and ready to emerge (species which are all single-brooded), one can only imagine that they, like their companions, were prepared to wait patiently till the spring. The species is a very distinct one, and may be recognised by the following combination of characters:—

♂, head and thorax closely punctured, and rather densely clothed with grey hairs, much as in *pilifrons*; antennæ rather short, the joints much swollen in front, with very narrow basal pubescent rings, 4th joint hardly longer than the 2nd and 3rd together, and subequal to the 4th, the following joints almost as wide as long. Abdomen suboval, unusually wide for that of a male, and formed more like that of *ferruginatus*, the basal and 2nd segment entirely red, the 3rd more or less black at the apex, basal segment largely and somewhat remotely punctured, the following segments more closely so, lacinia of the armature produced into a single spoon-shaped process, quite unlike that of any other British species; 2nd submarginal cell almost as wide at the base as high, wing hooks 5 to 7.

♀ closely resembles that sex of *spinulosus* and *pilifrons* by the close puncturation and hairiness of the mesonotum, but may be known from the former by the coarser puncturation of the head, the shorter antennæ, the points of the flagellum of which are wider than long, and by the smaller number of its alar hooks, 5—7 instead of 9—10; from the latter (*S. pilifrons*) it may be known by the red colour of the abdomen extending almost to the apex, the 5th segment, and sometimes the apex of the 4th, alone being black, also by the stronger puncturation of the segments, and the slightly more pointed, smoother, and less flattened area of the dorsal valve.

I have kept to v. Hagens' name, as to my mind it is very doubtful which species Panzer described and figured as *Tiphia rufiventris*, the pale tarsi which he mentions do not seem to agree with any species I know. I have an example of what seems to be the ♀ of this species from Littlehampton, and another from Tunbridge Wells, so I hope that now it has been called attention to it will occur in other localities.

St. Ann's, Woking :

October 10th, 1895.

NEUROPTERA OBSERVED IN GLEN LOCHAY.

BY KENNETH J. MORTON, F.E.S.

With the view of increasing my acquaintance with some of our more characteristic northern insects, I spent the whole of June of the current year in Glen Lochay, Perthshire. I was not altogether unsuccessful in my object, and as some of the results seem worth recording, I here offer a few notes regarding them.

My previous Highland experiences were practically limited to two short visits to Rannoch. I had been there early this spring, and my first impulse was to return, for there cannot be two opinions about the attractiveness of Rannoch when it has once been seen under favourable conditions. But some one said, "Rannoch is worked to death!" Allowing for the obvious hyperbole, I was forced to admit that there were plenty of other districts less known, and well worthy of attention.

Mr. P. Ewing, one of the Vice-Presidents of the Glasgow Natural History Society, had often urged me to try the Breadalbane country, arguing, from its rich alpine flora, a correspondingly good entomological locality. Circumstances favoured the selection of this district, and there never was any reason to regret the choice. It proved very productive, both in *Neuroptera* (including *Trichoptera*) and *Lepidoptera*. One disadvantage, as far as the former Order was concerned, was the scarcity of "tarns" or "lochans" amongst the hills which I could most conveniently work. Standing-water forms are consequently rather poorly represented in my lists. Loch Tay, no doubt, produces many of these, but I was quite unable to touch it, all my energies being absorbed nearer my quarters. The only Loch which received some attention was Lochan nan Damh, a peaty tarn lying at an elevation of about 1700 feet. A single visit to Lochan na Lairige (not in Glen Lochay, but lying north of Loch Tay, half way towards Glen Lyon), a lake of entirely different type with magnificent rocky surroundings, lying at about 1600 feet, was brought to a speedy close by a downpour of rain, a state of things quite exceptional, as nearly throughout the weather was very fine.

Perhaps the most interesting capture of any was *Æschna borealis*, Zett., a dragon-fly of boreal and alpine distribution, still little known. Taken by Mr. McLachlan in Rannoch in June, 1865, it was subsequently found in the same district by Mr. King and myself in 1889. Its occurrence in Glen Lochay marks an extension southwards of its known range in Scotland, and leaves little doubt that it will also be

found in the intervening higher parts of Glen Lyon. Although I became aware of its presence in Glen Lochay soon after my arrival, I did not succeed in taking it for several days, and it was never common. It occurred singly over a considerable area, and especially affected the sunniest glades and openings, both in the little birch woods which mark the course of the burns down the hill sides, and also in the larger woodlands on the lower ground. It is a sun-loving thing, only flying freely when the weather is really warm; it is fond of basking on light coloured stones, but when so resting is shy and flies off at once when any attempt is made to approach. While the greater number of examples were seen at the comparatively low altitude of 500 or 600 feet, the species was also met with on the "moss hags" around Lochan nan Damh, and I have no hesitation in expressing the opinion that its breeding places are such mountain tarns, whence the insects scatter themselves sporadically over the Glens in search of shelter, warmth and food. In the adult ♂ the blue markings are developed to an extent that almost makes them constitute the ground colour, and this feature makes the insect a striking one on the wing, and along with its smaller size, serves to distinguish it from *Æ. juncea*, which sometimes occurs at the same time and places.

With the exception of *Leucorrhinia dubia*, which was not found in Glen Lochay, the list of dragon-flies is identical with that of species taken at Rannoch in June, 1889 (Ent. Mo. Mag., vol. xxvii, p. 47). *Libellula quadrimaculata*, L., was common and wide spread; a wild insect, rather difficult to capture. *Somatochlora arctica*, Zett.: of this brilliant species, so often found associated with *Æ. borealis*, only a single ♀ was seen with certainty and taken. *Cordulegaster annulatus*, Latr., was found in the greatest profusion, and, compared with the *Æschna*, a wonderfully easy capture, as it hawked about along the burn sides or in hollows on the moors, and even in sheltered places far up the hill sides; at the same time it is a powerful insect, and on occasion its evolutions become rapid and high. *Æschna juncea*, L., only one taken, but the species was beginning to appear more frequently towards the end of the month. *Enallagma cyathigerum*, Charp.: a small blue *Agrion* which just began to appear at Lochan nan Damh at the end of June, but of which I failed to catch an example, no doubt belonged to this species. *Pyrrhosoma minium*, Harris, was common at the Lochan just named, as well as on the low ground.

In such a district *Perlidae* were naturally common. A slightly specialized alpine form of *Dictyopteryx microcephala*, Pict. (small and dark), was not rare at a streamlet running down Meall Ghaordie be-

tween 2000 and 3000 feet, at the middle of June; it was rather novel to me to see these insects flying about briskly in the hot sunshine and running vigorously over stones, as in the Carluke district the species occurs by the Clyde in March and April, usually latent under stones, and hitherto I have never seen it on the wing. *Perla maxima*, Scop., was frequent under stones at the river Lochay at beginning of the month; the examples were not large, and the ♂ was of the ordinary short-winged form found in North Britain. *Isogenus nubecula*, Newm.: a very few short-winged females (length of fore-wing, $7\frac{1}{2}$ –8 mm) were taken on June 28th at Lochan na Lairige. *Chloroperla grammatica*, Poda, was common and apparently normal, and the two species of *Isopteryx*, which I determine *tripunctata*, Scop., and *torrentium*, P., also call for no special remark. *Tænipteryx* sp.: similar to that recorded from Rannoch (Ent. Mo. Mag., loc. cit.) as *T. trifasciata*, P.; it is, however, quite different from the true *trifasciata* which does occur at Rannoch, but in April, not in June; the species now before me is almost certainly undescribed, although it has been known to, and held distinct by, Dr. Ris for some years. Four species of *Nemoura*—*variegata*, Oliv., *inconspicua*, Pict., *cinerea*, Oliv., and *cambrica*, Steph., complete the list of species of which examples have been kept.

The *Ephemeridæ* and *Psocidæ* were almost entirely neglected, and the *Planipennia* were also insufficiently attended to. *Sialidæ* were abundant; the only example preserved, a small ♀ from Lochan nan Damh, seems to be *S. fuliginosa*, Pict. The genus *Hemerobius* was represented by five species: *H. orotypus*, Wall., *H. marginatus*, Steph., *H. micans*, Oliv., *H. subnebulosus*, Steph., and *H. nervosus*, Fab. *Panorpæ* were swarming on the lower grounds, and they also ascended the hill sides to a considerable height; they all seemed to belong to various forms of *P. germanica*, L., with the exception of one ♂ *P. communis*, L., a species certainly not common in Scotland.

Excepting the Limnophilid forms peculiar to standing waters, *Trichoptera* as a whole were numerous, both as individuals and species. The following list includes most of the species noticed.

Phryganea striata, L., was common at Lochan nan Damh; the examples were smaller and darker than the normal form. *P. obsoleta*, McL., began to appear at the end of the month in the same locality.

The only representatives of the genus *Limnophilus* were a few odd specimens of *L. centralis*, *auricula* and *sparsus*.

Stenophylax stellatus, Curt., was common by the Lochay; of *S. infumatus*, McL., a single ♂ taken at a small burn was more like the Clyde than the dark Rannoch form.

Sericostoma personatum, Spence, common by the river, and also at Lochan nan Damh, the examples ranging in colour from the usual brown to black. *Goëra pilosa*, F., common at the river. *Brachycentrus subnubilus*, Curt., was found in abundance all over the Glen in the early part of June. *Lepidostoma hirtum*, F., and *Lasiocephala basalis*, Kol., were both common by the river.

Beræa pullata, Curt., occurred in a marshy spot; *Molanna palpata*, McL., in myriads around Lochan nan Damh; *Leptocerus cinereus*, Curt., and *L. bilineatus*, L., both by the river, where *Mystacides azurea*, L., also swarmed. *Odontocerum albicorne*, Scop., was just coming out.

Hydropsyche fulvipes, Curt.: a few of this interesting species were beaten from an isolated alder standing on a slope above a rapid stream near the foot of Meall Ghaordie. *Philopotamus montanus*, Donov., common. *Plectrocnemia conspersa*, Curt., and *P. geniculata*, McL., were frequent. *Polycentropus flavomaculatus*, Pict., was noticed at Lochan nan Damh, where *Cyrnus trimaculatus*, Curt., and *C. flavidus*, McL., also occurred, the last named species at this Lochan as well as at Lochan na Lairige, assuming a pallid form which approximates to that found by Mr. King at Tongue in Sutherlandshire, totally unlike the type form in appearance, but seemingly identical in structure of the genitalia. *Psychomyia pusilla*, F., at the river.

The *Rhyacophilidæ* were represented by *Rhyacophila dorsalis*, Curt., *Glossosoma Boltoni*, Curt., and *G. vernale*, Pict.; also *Agapetus comatus*, Pict. Only one Hydroptilid was observed, namely, *H. femoralis*, Eaton.

In the meantime I cannot refer to the *Lepidoptera*, but hope to give some account of them as soon as the Micros have been fully determined.

Carlisle, N.B.: October, 1895.

BEMBIDIUM VIRENS, GYLL., AN ADDITION TO THE BRITISH LIST.

BY G. C. CHAMPION, F.Z.S.

I have much pleasure in being able to record this species from Britain. It was found not uncommonly by Mr. R. W. Lloyd and myself on July 6th, 1892, on the shores of Loch Maree, Ross-shire. *B. virens* is allied to *B. prasinum*, Duftschm. (= *olivaceum*, Gyll.)—near which the Loch Maree insect had been placed in my collection and forgotten—a species occurring in various parts of Scotland (Rannoch, Braemar, &c.), as well as in England. It is, however, less

depressed, more shining, and of a brighter æneous colour, and has the basal joint of the antennæ entirely black (in *B. prasinum* the basal joint is always testaceous beneath, and in some specimens entirely so), and the striæ of the elytra distinctly punctured. Gyllenhal described the insect in 1827, in his "Fauna Suecica" (iv, p. 407), from specimens obtained in Sweden (Uddevalla and Bahusia) and Lapland. It is also recorded from Finland and Switzerland by J. Sahlberg, and from Norway by Thomson; but it does not appear to be known from Germany or France. The name, *B. Pfeiffi*, C. R. Sahlberg [Ins. Fenn. Dissert. Acad., i (part xiii), p. 195 (1817—1834)], is adopted for this species by Dejean [Icon. Hist. Col. d'Europ., iv, p. 393, t. 215, fig. 5 (1834)], and by Thomson (Skand. Col., i, p. 201). J. Sahlberg, however (Enum. Col. Carn. Fenn., p. 76), uses the name *B. virens*, Gyll.; he gives the date of publication of part xiii of C. R. Sahlberg's work as May, 1827. It is uncertain which name has the priority, both having appeared in 1827; but it may be remarked that C. R. Sahlberg himself quotes Gyllenhal's name, at the same time using that of *B. Pfeiffi* for the insect. I have compared the Scotch specimens with others from Lapland in the British Museum, and with one from Sweden from Gyllenhal's collection kindly communicated by Prof. C. G. Thomson, with which they perfectly agree.

Horsell: October 12th, 1895.

Coleoptera at Woking.—The following *Coleoptera* have been observed by me in this neighbourhood during the past year, most of those previously recorded from the district being omitted. A few of them are additions to my local list:—*Harpalus discoideus*; sparingly, from May onwards, in sandy places, at the roots of heather, in company with *Amara inflata* and *A. spreta*. *Pterostichus lepidus*; one specimen in a sand-pit. *Silusa rubiginosa*; in a sappy elm. *Oxyptoda brachyptera*, a few specimens, and *Falagria thoracica*, singly, near the "runs" of *Formica fuliginosa*, with which ant the usual *Myrmedonia* were found. *Homalota hepatica*; one specimen flying, in May, in Hermitage Wood. *H. deformis*; one specimen, also on the wing, on July 8th. *H. divisa*, *H. angustula*, &c., by sweeping. *Trichophya pilicornis*, *Mycetoporus clavicornis*, and *Oxytelus clypeonitens*; in sand-pits. *Orypus ater*; in my garden. *Stenus brevicollis*; commonly, by evening sweeping, in boggy places on the heaths. *Colan angulare* (a very small ♂), *Anisotoma ovalis*, *A. Triepkei*, and *A. nigrita*, *Agaricophagus cephalotes*, *Cyrtusa pauxilla*, *Scydmænus angulatus*, &c.; by evening sweeping. *Ips quadripunctata*; one specimen crawling in the road. *Pityophagus ferrugineus*; in the pine woods. *Epuræa parvula*; under pine bark. *Ernobius mollis*; in plenty, about freshly cut pine wood. *Serica brunnea*; occasionally in my garden in the evening, in August, crawling on the paths, apparently emerging from the ground. *Byrrhus dorsalis*, *Microzoum*, *Notoxus*, *Acalles ptinoides*,

Trachyphloeus aristatus, *Gronops lunatus*, *Sitones cambricus*, *Hylastes angustatus*, &c.; in sand-pits. *Cryptophagus pubescens*, *Limonius cylindricus*, *Salpingus aeratus*, *Mordellistena brunnea*, *Cryptocephalus moraei*, &c.; by sweeping. *Nanophyes gracilis*; one specimen, by sweeping in a marshy place. *Rhinoncus bruchoides*; on *Polygonum*. *Aphodius testudinarius*; on the wing, towards evening. *A. subterraneus*, *A. tristis*, *A. inquinatus*, &c.; in their usual habitat. *Donacia menganthidis*, *D. hydrocharidis*, &c.; about the Canal. *Cleonus nebulosus*; in sand-pits, from the end of March to the end of September, and commoner than usual this season. The electric lamps, which have recently been placed in many parts of the Woking district, attracted a large number of beetles in May, but all those noticed were very common species, such as *Melolontha vulgaris* (in swarms), *Anchomenus prasinus* and *A. albipes*, *Harpalus aeneus* and *H. ruficornis*, *Nebria brevicollis*, *Carabus nemoralis*, *Agriotes*, &c.; these insects were found on the ground round the base of the lamp-posts, the *Melolontha* only flying up to the light. — G. C. CHAMPION, Horsell, Woking: October 9th, 1895.

Amara alpina at Rannoch. — I captured two examples of this rare British species in the early part of July last on the summit of Grayvef (or Meall Phuill, as it is written on the Ordnance maps), near Loch Rannoch. One of them is a male, with the disc of each elytron reddish in colour; the other, a female, is entirely pitchy-black. It will be remembered that the insect was originally recorded from the same locality by the Rev. T. Blackburn in 1866 (cf. Ent. Mo. Mag., iii, p. 92). Specimens were subsequently found by Drs. Buchanan White and Sharp near Braemar, and by Mr. Champion at Aviemore. I also found *Miscodera arctica* on the same mountain. Both species were found under stones, at an elevation of 2880 feet. — R. W. LLOYD, St. Cuthbert's, Thurleigh Road, Balham, S.W.: Oct. 9th, 1895.

Carabus cancellatus, Ill., in West Cork. — On August 21st last, while spending a holiday at Rosscarbery, in West Cork, I was searching for ground-beetles at a place called Pouladar, a grassy glen opening on the shore about two miles from Rosscarbery village. Under a large stone I found two female *Carabi*, one of which was the common *Carabus granulatus*, L.; the second I at first judged to be that species also, and was about to throw it away when I noticed some peculiarity in its appearance and preserved it.

On examining the insect on my return to Dublin, I referred it to the species *Carabus cancellatus*, Ill., and Mr. Carpenter, after comparison with a large series of that beetle in the Dublin Museum, has confirmed my identification. It differs from the type in having the femora entirely black, and would appear to be undoubtedly scarce in the locality where it occurs; a careful search during the following fortnight having failed to reveal a second example. It is probably a south continental survival, of which we have several analogous instances in the fauna of the extreme south of Ireland, and possibly on the point of becoming extinct there. As the capture is somewhat noteworthy, I have presented the specimen to the Dublin Museum. — H. J. CUTHBERT, Recess, Blackrock, Dublin: September 23rd, 1895.

[I have not seen the specimen referred to, but the insect has, apparently, been

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carefully verified; it is the *C. granulatus* of Stephens (Illustrations, Mand., i, p. 51, pl. iv, fig. 1), who records four examples as "taken in a dark pit near Gravesend in the spring of 1826;" there appears to be no other British record, but there is no reason why the insect should not occur in Britain, as it is widely spread throughout northern and central Europe, and reaches as far south as the Pyrenees and northern Italy.—W. W. F.]

Psammobius porricollis, Ill.—Within the last twelve months I have made three excursions to Whitesand Bay, Cornwall, in company with my friend Mr. J. H. Keys, of Plymouth, to search for *Psammobius porricollis* in its original and, so far as I am aware, sole British locality. On each occasion we have found the little Scarabeid in at least fair numbers, and I am tempted to give some account of the habits of one of the most local and rare of our British *Coleoptera*.

The first specimen taken by me in June, 1875 (*cf.* Ent. Mo. Mag., Ser. I, vol. xii, p. 64), was evidently a straggler from its head-quarters, which I found in the following August (*l. c.* p. 108) in a sandy bank (now occupied by rifle butts) in the "chine" below Fort Tregantle. Here it occurred not rarely at roots of small plants (*Leontodon*, *Plantago*, &c.), as well as under small stones, but I found it only on one occasion. With the exception of a single specimen taken by myself one miserably wet day in May, 1879, no more examples were obtained for many years, though Mr. Bignell, Mr. Keys and I made several excursions to Tregantle at various times, especially to look for it. About the middle of September, 1891, Mr. Keys discovered a new station for the *Psammobius* at some little distance from the original spot (Ent. Mo. Mag., Ser. II, vol. iii, p. 24). At that time it would seem to have gone into winter quarters, as Mr. Keys found some of his specimens buried to a depth of at least six inches in the sand under tufts of grass growing at the top of the cliffs.

At present *Psammobius porricollis* appears to be restricted to a space of a few yards square in extent, about halfway up the cliffs, and 30 or 40 feet above high-water mark, where the clean sand of the beach passes into a sort of loam, the *débris* of the schistose rock of which the cliffs are composed. Here it occurs sparingly, in company with *Harpalus tenebrosus*, under the scattered and partially embedded stones, and frequently in pairs. It is usually found in a burrow about an inch long, either at the side or just under the edge of the stones, and is frequently so coated with red earth as not to be at once discernible when the stone is raised. It is about the most sluggish beetle that I know, and in the hottest weather I have never seen one on the move or even on the surface of the ground. This is also the case at Gibraltar and other Mediterranean coast localities where the insect is common. It appears to be obtainable during the whole of the spring and summer, as this year I found it on March 25th, and again in August, some of the specimens taken on the latter occasion being rather immature. More than once I have observed a whitish grub, like that of an *Aphodius*, under the stones with the *Psammobius*, which is probably its larva.

The presence of a colony of *Psammobius porricollis* on our coast is interesting from the point of view of its distribution, which on the Continent appears to be decidedly southern. Mulsant (Hist. Nat. des Coléoptères de France, Lamellicornes,

p. 405) writes as follows: "Cette espèce est méridionale. On le trouve en Provence, en Languedoc, elle est rare dans les environs de Lyon." The locality at Whitsand Bay is not at all easy of access, and is moreover commanded by the rifle range at Fort Tregantle, so it is to be hoped that the *Psammobius* will continue to hold its own there for many years to come.—JAMES J. WALKER, H.M.S. "Northampton," Portsmouth: October 7th, 1895.

Psilota atra, Fln., and *Didea intermedia*, Lw., as British Insects.—These two species are not included in Mr. Verrall's list of British *Diptera*, but are mentioned in the paper on "Rare British *Diptera* in the British Museum" (*ante* p. 113). It may be well, therefore, to give some more detailed notice.

Psilota atra, Fln.—In Mr. Verrall's list of "Reputed British *Diptera*" is *Psilota anthracina*, Mg., doubtless because the species is given as British by Walker in "Insecta Britannica *Diptera*," vol. i, p. 269, where he says, "this species is in Mr. Stephens' collection." Mr. E. E. Austen writes as follows:—"The two specimens which now appear above the label *Ps. anthracina* in Stephens' collection both belong to *Pipizella*, and it is significant that Walker's figures of the head and wing are simply copied from Meigen. Whether *Ps. anthracina*, Mg., is a synonym of *Ps. atra*, Fln., it is impossible to determine without examining the types, which may no longer be in existence. Fallén only describes the male, while Meigen's description is based solely on the female. But Meigen's figures show the face excavated below the antennæ and the fourth vein outwardly concave at the tip, which is not the case in the above mentioned specimens in the British Museum. In any case, Fallén's species has the priority." The capture of three specimens of this species, 1 ♂, 2 ♀, in the New Forest is therefore of interest.

Didea intermedia, Lw.—This may not be distinct from *D. fasciata*, Mg., but would seem to be at least a very well marked form.

Both of these species may therefore be admitted as New British *Diptera*.—E. N. BLOOMFIELD, Guestling: October 10th, 1895.

Hylemyia festiva, Zett.—Sixteen specimens of this handsome fly were bred by Mr. C. J. Watkins from the burrows of *Pemphredon lugubris*, and recorded in Ent. Mo. Mag., December, 1893, p. 285, and the Entomologist, October, 1894, p. 286. Hence it was rendered very probable that the *Hylemyia* was a parasite on the *Fossor*. This is now almost certain, as Mr. E. Saunders has also bred the same fly from the burrow of a *Pemphredon*.—ID.

Catocala frazzini, L., and *C. sponsa*, L., &c., in the Hastings district.—*Catocala frazzini*, L., was taken in a house at Clive Vale, in the outskirts of Hastings, by Mr. Langdon on the evening of September 25th; it is a rather worn specimen. *C. sponsa*, L., was captured at sugar at Ewhurst, in Sussex, by Mr. W. Esam on August 8th; a very nice specimen. Besides this species Mr. Esam took at Ewhurst, about the same date, *Epunda lutulenta*, Bork., and *Psoricoptera gibbosella*, Zell. *Colias Edusa*, var. *Helice*, was taken near Hastings early in September.—ID.

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Colias Edusa at Caterham, &c.—I was at Deal in the beginning of July and observed a ♂ *C. Edusa* there, and at Caterham in August and September the species was common. I could have taken twenty without any trouble. There were about twice as many ♂ as ♀.—A. LOVELL KEAYS, Caterham: September 23rd, 1895.

Grapta c-album and Sphinx convolvuli near Dover.—Adjudicating to-day upon the Natural History collections made by the pupils of Mr. Murray, of St. Clare, Upper Walmer, I noticed a fine female example of *Grapta c-album*, caught in the grounds last week. This is of peculiar interest, as apart from the isolated specimen taken here by me last autumn, our latest records of this butterfly in the neighbourhood have all pointed to Walmer as the local head-quarters. Another collection had in it a *Sphinx convolvuli*, a species not uncommon with us this year, as I have heard of upwards of a dozen specimens taken near Dover. The forerunner of these was brought into Mr. Gray's shop by a fisherman of a deep sea trawler; it flew aboard the smack full sixty miles from the nearest land in the North Sea, towards the end of August.—SYDNEY WEBB, Maidstone House, Dover: October 2nd, 1895.

Charocampa celerio at Dover: correction of an error.—It was owing to a slip of the pen that the name *Deilephila livornica* was applied to the insect found at Dover recorded at p. 241 ante. It should have been *C. celerio*.—ID.

Protective odour in Corycia taminata.—In the early part of the past summer my son captured at Caterham a *Corycia taminata* (♀), which he boxed in the ordinary way. On our arrival home and proceeding to examine our captures, we were both struck by the filthy smell emitted by the insect, reminding us of an unusually "strong" *Chrysopa* in full blast. The chip box smelt for hours afterwards, whilst the stench in the damp box in which it was temporarily placed made the box intolerable until thoroughly aired. We are all in the habit of recognising in various Orders of insects form and colour as evidences of protective mimicry. Is not the above another illustration in the same direction? It would, I think, have been a particularly enterprising bat or nightjar that would have attempted to appropriate a moth whilst emitting so disgusting an odour.—F. LOVELL KEAYS, 26, Charles Street, St. James's, S.W.: October, 1895.

[Has any other observer noticed this habit in *C. taminata*? The species name is suggestive, but we think this is commonly supposed to refer to the black markings on the otherwise spotless white fore-wings.—EDS.].

Mecostethus grossus in Norfolk.—My friend Mr. B. G. Rye, while collecting in Norfolk in September last, came across this species in some numbers, and recognising that it was not one of our commoner species, kept two or three specimens for reference; one of them, a very fine ♂, he has kindly added to my collection. The specimens were taken by sweeping *Myrica gale*.

Previous to the present year only three specimens seem to have been recorded from Great Britain during the past half century, one of them having been taken some years since in Norfolk, as recorded by Mr. Eland Shaw (Ent. Mo. Mag., vol.

xxv, p. 412); a second in Kerry, recorded by Mr. H. N. Ridley (Ent. Mo. Mag., vol. xx, p. 215); and the third at Irstead in Norfolk in 1892, and recorded by Mr. Eland Shaw (*vide* Ent., vol. xxv, p. 294). In July, 1895, it occurred in abundance in the West of Ireland, as recorded in *The Irish Naturalist*, vol. iv, pp. 228 and 258, by Mr. G. H. Carpenter, who most kindly presented me with a pair.

It is certainly singular that a species hitherto so rare with us should turn up in numbers both in England and Ireland in the same season.—C. A. BRIGGS, 55, Lincoln's Inn Fields: *October 9th*, 1895.

Obituary.

Prof. Charles Valentine Riley, M.A., Ph.D., Hon. F.E.S., &c.—The sad news of Prof. Riley's death came to us as a shock. It occurred at Washington on September 14th: he was killed instantaneously by a fall from his bicycle, at a time when (according to a letter written by him to a friend here a few days previously) he had not fully recovered from the effects of another serious accident of a different nature.

Prof. Riley was born at Chelsea on Sept. 18th, 1843; his early years were spent at Walton-on-Thames, where he made the acquaintance of the late W. C. Hewitson, and it is just possible this may have developed his taste for collecting insects and also for drawing them, which latter talent conspicuously helped him in his future career. He was sent to school in France and in Germany, remaining abroad about six years. At the age of 17 (or probably slightly less) some real or imaginary family grievance caused him—to use his own words—to “run away from home,” and he emigrated to America, where for three years he was engaged on a stock farm in Illinois, and acquired and showed great practical knowledge. For a short time he seems to have been occupied at Chicago in work which only the adaptability of his character could have rendered congenial to him. Then he was reporter on more than one newspaper, and especially the “*Prairie Farmer*,” in which appeared most of his early writings. During the Civil War he served for six months with the 134th Illinois Volunteers. In 1868, in conjunction with the late B. D. Walsh, he started the *American Entomologist*. A second vol. (Mr. Walsh having died in the meantime) appeared in 1870, and a third in 1880. In 1868 he accepted the position of State Entomologist for Missouri, and the nine Annual Reports (now very rare) published during his tenure of office proved (if proof were needed) the remarkable thoroughness of his work, his originality in devising mechanical means for distributing the remedial agents he adopted, and his great skill as an artist: these Reports drew forth the highest encomiums all over the world. Having mentioned remedial agents, it may here be mentioned that “*Paris Green*” and “*Kerosene Emulsion*” are two of the special adaptations of Riley, and that the manufacture of mechanical appliances for distributing them, and others, has become an industry in itself in the States, and to a less extent elsewhere.

Here we must leave any detailed notice of his subsequent career. In 1877 he was the head of a Commission to enquire into the case of the Rocky Mountain Locust, and in 1878 and from 1881 to 1894 he was Government Entomologist to the United States, with a large staff of assistants, during which time he published Annual

Reports, wrote many of the Bulletins, and established the journal known as "Insect Life," which he edited to the end of vol. vi in 1894 (a seventh and last vol., edited by Mr. Howard, has since appeared). In 1894, worried by official parsimony and other matters (consequent on a deficient Government Treasury), he sent in his resignation. It is said to be an open secret that this step was to some extent diplomatic: be that as it may, his resignation was accepted, and he found time (of short duration, alas!) in his capacity of Hon. Curator of the Entomological Collections of the U. S. National Museum (to which he had presented his own very extensive collections) to commence scientific systematic work, to which he had long looked forward. No doubt his health had also suffered greatly, and he needed rest: this was plainly evident from his jaded appearance when in England last summer.

Many years ago Riley married a lady of Danish extraction, who with several children survives him: the main object of his recent visit to Europe was to bring his two daughters to school in France. At that time, in the course of conversation, he more than once confided to the writer of this notice his intention of settling once more in England, near the scenes of his childhood, if he could satisfactorily dispose of his property in America.

Riley was nothing if not original. For his suggestions as to reviving the etiolated French Vineyards by using certain American *Phylloxera*-proof stocks on which to graft, he received the gold medal of the French Government; subsequently he received the Cross of the Légion d'Honneur in connection with the Exhibition of 1889. His services in connection with the Rocky Mountain Locust, the Cotton Worm, and the Australian *Icerya*, are too well known to need detail: but in this latter case he was the first to demonstrate the practicability of introducing from abroad the insect enemies that help to check the ravages of an imported species in its native country. There was probably only one real *fiasco* in his career. The rapid spread of the Colorado Beetle induced him to predict its speedy appearance in Europe, and this created what amounted to a panic on this side of the Atlantic. The Colorado Beetle disappointed him by not acting up to his anticipations, and somehow or other we hear next to nothing of it now in the States.

Prof. Riley was elected Hon. Fellow of the Entomological Society of London in 1889; he was also Hon. Fellow of our Royal Agricultural Society, and of most of the leading Entomological Societies on the Continent.

We should not omit to mention that he was a candidate for the Hope Professorship at Oxford rendered vacant by the death of Prof. Westwood (who had specially notified his wish that Riley should succeed him), but was too late in the field.—
B. McLACHLAN.

Major John Nathaniel Still, F.E.S., died very suddenly on September 23rd, whilst playing golf on the links at Whitechurch, Tavistock, aged 47. He came of a Devonshire family, and was the son of Mr. John T. Still, late of Castlehill, Axminster, and Mountfield, Musbury. He entered the army as ensign in the 25th Regiment (King's Own Scottish Borderers) in June, 1867, and resigned in 1873, but subsequently became attached to the Royal Wiltshire Regiment, and retired with the rank of Major in 1886. After his retirement his early love of Entomology re-asserted itself, and he devoted most of his time to exploring Dartmoor and other parts of

Devon, making noteworthy discoveries (especially in *Lepidoptera*), and acquiring a host of entomological friends and correspondents, prominent amongst whom was Mr. Bignell, of Stonehouse, to whom "beginners" never apply in vain for information and guidance, and of whom, as we are informed by his widow, he always spoke as his mentor. He joined the Entomological Society of London in 1891.

Societies.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: September 26th, 1895.—T. W. HALL, Esq., F.E.S., President, in the Chair.

The President referred to the great loss the Society had sustained by the death of Mr. W. H. Tugwell, and Mr. Adkin proposed and Mr. Tutt seconded that a letter of condolence and sympathy be sent to Mrs. Tugwell.

Mr. Adkin exhibited specimens of *Spilosoma menthastris*, Esp., from Morayshire, of which the fore-wings were a rich dark brown in colour, and a specimen of *Carpocapsa pomonella*, L., bred from a walnut; Mr. West, of Greenwich, had also bred the species from chestnut. Mr. South, a short series of *Xanthia fulvago*, L., from Macclesfield, representative of a large number bred this year; var. *flavescens* occurred about one in twenty, but the *flavago* form was very rare. Mr. Oldham, a series of *Lycana bellargus*, Rott., from Folkestone, showing considerable blue coloration in the females. Mr. Tutt, on behalf of Mr. Massey, a long series of *Lycana Ægon*, Schiff., from Westmoreland, the males showing both tinted forms and the females most beautifully suffused with blue; long series of both the *lucens* and *paludis* forms of *Hydræcia nictitans*, Bork., from Warrington, but stated that the two forms were not taken together; long series of *Orthosia suspecta*, Hb., from Warrington, showing nearly all forms but the type; and a short series of *Celena Haworthii*, Curt., showing exceedingly well marked dimorphism. Mr. Turner, specimens of *Calopteryx Virgo*, L., from Horsham, two specimens of *Charocampa celerio*, L., from an old collection made near Sheffield many years ago, and a specimen of *Lycana Icarus*, Rott., from Clandon, having the submarginal row of spots on the under-sides of the fore-wings prolonged into dashes.

It was resolved to instruct the Council to request each Member to forward his photograph for insertion in the Society's album.

October 10th, 1895.—The President in the Chair.

Mr. Henry Tunaley, F.E.S., 30, Fairmount Road, Brixton Hill, S.W., was elected a Member.

Mr. McArthur exhibited specimens he had taken this year in the Orkneys, viz., a series of *Thera juniperata*, L., with the ground-colour much whiter, while the dark markings were intensified and somewhat extended; two almost white specimens of *Melanippe montanata*, Bork.; three fine varieties of *Nemeophila plantaginis*, L., one having much darker hind-wings, while another had yellowish-red hind-wings with fewer dark markings; and var. *sedii*, Gn., and var. *luneburgensis*, Frr., of *Aporophyla lutulenta*, Bork. Mr. Winkley, on behalf of Mr. Montgomery, of Ealing, specimens of a second brood of *Argynnis Selene*, Schiff., from Abbott's Wood, also a beautiful under-side var. of *Lycana bellargus*, Rott., from Eastbourne, having a very light ground, a blue base, and many of the usual dark markings obliterated while others

were extended. Mr. Oldham, series of *Odonestis potataria*, L., bred from Camba., three males being of the female coloration; also *Colias Edusa*, Fb., one *Leucania albipuncta*, Fb., and suffused red *Phlogophora meticulosa*, L., from Folkestone, and black forms of *Xylophasia polyodon*, L., from Woodford. Mr. R. Adkin, a very beautiful series of *Noctua depuncta*, L., from Morayshire. Mr. Hy. J. Turner, a bred series of *Xanthia fulvago*, L., from Surrey, including var. *flavescens*, Esp., and the dark yellow form; a series of *Epinephele hyperanthus*, L., from Chattenden, including var. *Arete*, Müll., and an intermediate form; specimens of *Silpha quadripunctata*, L., from the New Forest, and a dark variety of the same species from Chattenden; and a specimen of *Crioceris merdigera*, F., from the same locality. A discussion ensued upon the occurrence of *Colias Edusa*, Fb., this season, and Mr. Winkley stated that Mr. Montgomery, of Ealing, had taken seventeen specimens at Eastbourne and had already bred seventy-eight from the ova laid.—H. J. TURNER, *Hon. Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON: *October 2nd*, 1895.—Prof. RAPHAEL MELDOLA, F.R.S., President, in the Chair.

Mr. George H. Carpenter, B.Sc., of the Science and Art Museum, Dublin; and Herr Paul Krantz, of Pretoria, Transvaal, South Africa; were elected Fellows of the Society.

Mr. McLachlan exhibited, on behalf of Mr. Bradley, of Birmingham, the specimens of *Diptera* attacked by an entomophthorous fungus of the genus *Empusa*, of which an account had recently appeared in the Ent. Mo. Mag., August, 1895, p. 178. Mr. H. Tunaley exhibited specimens of *Lobophora viretata* from the neighbourhood of Birmingham. Specimens of the green dark form were shown in their natural positions on the bark, and specimens of the yellow form were shown on leaves on which they rested. Mr. J. W. Tutt exhibited, for Mr. Anderson, of Chichester, cases formed by a Lepidopterous insect received from the Argentine Republic, which he said he recognised as being either identical with, or closely allied to, *Thyridopteryx ephemeriformis*, which did great damage to many orchard and forest trees in North America. Mr. Tutt also exhibited a series of *Lycæna Egon* captured by Mr. Massey, of Didsbury, on the mosses in Westmoreland. The males were remarkable in bearing two very distinct shades of colour. The females also differed considerably from the form occurring in the south of England. He also exhibited a long series of *Hydracia lucens*, captured in the mosses near Warrington, and for comparison a series of *Hydracia paludis*, and he read notes on the various specimens exhibited. Dr. Fritz Müller communicated a paper, entitled, "Contributions towards the history of a new form of larvæ of *Psychodida* (*Diptera*) from Brazil." Baron Osten Sacken communicated a paper, supplemental to the preceding one, entitled, "Remarks on the homologies and differences between the first stages of *Pericoma* and those of the new Brazilian species." The Rev. A. E. Eaton also contributed some supplementary notes to Dr. Fritz Müller's paper. Lord Walsingham read a paper, entitled, "New Species of North American *Tortricida*." In this paper twenty-nine species were dealt with, of which twenty-six were described as new, from Florida, California, N. Carolina, Arizona, and Colorado. The paper also included certain corrections made by the author in the nomenclature of genera.—DAVID SHARP, *Acting Secretary*.

REMARKS ON *SCOPARIA BASISTRIGALIS*, KNAGGS.

BY B. A. BOWER, F.E.S.

A comparatively short series of the above species, which I exhibited at a Meeting of the Entomological Society of London held last March, having apparently interested several of the Lepidopterists present, it may be as well to give a few remarks upon the insect.

The shape of this species will always distinguish it from *ambigualis*, its fore-wings though narrow close to the base, being decidedly broader than in that species, with a greatly arched costa—especially so in the females. And again, the time of its occurring would tend to prove it distinct, as although there is actually no definite period between its emergence and the disappearance of *ambigualis*, the latter has become greatly diminished in numbers and in a dilapidated condition, before *basistrigalis* puts in an appearance. Added to which any one having seen the species in nature cannot but have been struck with the peculiarly robust look of the insect—due to the width of the united fore-wings—when at rest on palings or tree-trunks, in which position some of the aberrations assimilate in a wonderful manner with their surroundings. For instance, an exceptionally dark specimen on a tarred fence, or a silvery-grey one on a lichen-covered tree-trunk.

The moths are not uncommon in one or two woods in Kent, but in these are restricted to a very small area, and even then show a marked partiality for certain trees, though to all appearances these are similar to the rest in every respect.

Hitherto efforts to obtain larvæ of this moth have been fruitless and I think I have proved it not to be a moss-feeder, as the experiment of placing a number of females in pots of growing moss, resulted in complete failure; whereas *S. cratægalis* and *S. mercurella* so treated, breed freely.

I know it is the opinion of some Entomologists that this is only a local form of *ambigualis*, and that the variation is solely due to more succulent food-plant or damp situation. Now this surmise might hold good in the case of the exceptionally dark specimens, but unfortunately for this reasoning, there are also the light ones occurring with them to be taken into account, and indeed the situation where I find it most commonly is abnormally dry, as may readily be conceived when it is stated that the district is a sandy one, with a sub-soil of chalk.

Appended are brief descriptions of a few of the most pronounced aberrations in my cabinet, though they give but a faint idea of the great range of variation exhibited in the lengthy series of about fifty

examples. One or two wholly suffused from base to apex with dark smoky-grey; others with the lines and stigmata strongly blackened, and extremely conspicuous; others having the whole central space from first to second line suffused with blackish, in which the usual markings are deep velvety-black; or the central space is so smoothly and deeply clouded with velvety-black that the stigmata are hidden. Of these some have the white transverse lines brightly white, others have them less distinct, or clouded with grey; most of these have the marginal space outside the second line clouded with dark grey or black, but in one specimen this space is whitish-grey, which, with the black central space, gives the insect a most peculiar appearance. On the other hand, some of the typical pale specimens are of a lovely pale silvery-grey.

Lee: *October 10th*, 1895.

NOTE ON THE FIRST LARVAL STAGE OF *STAUEOPUS FAGI*.

BY THE LATE W. H. TUGWELL.

Thanks to Mr. Barnes, who most kindly sent me on May 21st a living female *S. fagi* (of the melanic form), which he had found in the Beech Wood near Reading, I have been enabled to closely study the earlier life of this most curious and interesting larva. When found, the moth had evidently deposited a good many of her ova, for during the seven days I had her alive, she only laid 40 more, and the last six of these proved infertile, or so weak, that although they changed colour they failed to hatch. The eggs, when first laid, are of a hemispherical form, flattened beneath, of a pale cream-colour; about the seventh day, a central depression, and a round dark spot are developed; gradually the whole area becomes of a dull plum-colour, and about the 10th day, they hatch. The young larvæ are singularly ant-like in appearance, their long legs and curious anal appendages seem ever in motion, which makes them look very large for larvæ just out of the shell. This egg-shell is to them a most important item, as on it alone they feed until after the first moult. Of this I most thoroughly assured myself, as being an invalid and confined to my room, time was no object to me, and I could and did watch these curious little creatures hour after hour, and day after day. I watched them eat a hole in their egg-shell out of which they crawled, then stretching themselves they soon evinced considerable activity, moving their long legs and caudal appendages, with a nervous jerky motion;

they would start off as if they were going to walk away, but it would only be for an inch or so, when they would rapidly return and then repeat this sort of thing in various directions, but never leaving the all-important egg-shell; they would nibble a bit of this food, which seemed a tough morsel for the jaws of the young larva. Some would eat the whole shell, others less, but for the first few hours they seemed to mount guard over this food, and should perchance another larva come within touch, they went for it, fighting vigorously to drive away the intruder. But should the young larva be driven away before it had finished its first and only meal, say two or three hours from the time of hatching and eating its shell, the result was death to the vanquished, as I never could get them to eat any other egg-shell than their own. I tried several, but I never saw them eat save their own egg-shell, and I never saw them eat after their first meal until the first change of skin, which took place about the 7th day after hatching. I gave them leaves of oak and beech, but although I watched them most closely, they were never touched. It is of course common for many larvæ to eat their own egg-shell, but I never met with any other where the one meal sufficed to satisfy them until after the first change of skin. This fact is, so far as I know, quite unique. The usual changes of skin, and pupation, have been most fully and ably given in the posthumous work, "The larvæ of British Butterflies and Moths," by the late Mr. Buckler. But this feature is there only mentioned in a foot-note (Vol. ii, p. 66) by Mr. Stainton, containing an extract from a letter from Mr. Doubleday to Mr. Buckler. The foregoing notes fully confirm Mr. Doubleday's statement.

Lewisham Road, Greenwich :
September, 1895.

FURTHER NOTES ON *FUMEA BETULINA*, ZELLER.

BY CHAS. G. BARRETT, F.E.S.

My recent notes on the *Psychidæ* have already borne fruit! My friend Mr. W. H. B. Fletcher has been at work in the New Forest, and has found cases of *Fumea betulina*, Z., which have produced, in very small numbers, imagines of both sexes. He sent up females alive, with their cases. The female proves to be unlike those of *F. roboricolella* and *intermediella* in that it is not curved into a semicircle, nor tapered off behind. It is very plump, and hardly bent, but almost barrel-shaped; head shining, black-brown, with antennæ very slender, rather beaded, drooping, and of a brown colour; the rest of the head a mere horny mask, having indications of the form of the mouth

Z 2

organs, but apparently without actual structure. Thorax covered with a black-brown shining plate, like that of a larva; legs rather long, slender, with strongly hooked feet, with which it clings tightly to the case; body pinkish-white, thinly covered with dark grey scales, except at the segmental divisions, which are naked; anal extremity bluntly terminated and broad (like the head of a barrel), having a dense circlet of long brownish-white scales; ovipositor brownish-white, telescopic, and when fully extended, as long as the whole remainder of the creature, but usually so far withdrawn in its three long joints that only a small horny point projects from the lower portion of the obtuse anal segment.

From the examination of a perfectly fresh male also sent, it appears that the description already given is incomplete, since the surface of the fore-wings is neatly, though very obscurely, reticulated all over with faintly blacker cross lines, and a large, slightly blacker, spot shows itself at the end of the discal cell. These markings are not visible in specimens which have become a little faded in the cabinet. The cases, as usual, were blackish, moderately erect, slightly constricted at each end, and with minute bits of dead leaf or bark scattered over their surface. The moths emerged in June and the beginning of July.

39, Linden Grove, Nunhead, S.E. :
October, 1895.

ON THE LARVA OF *MAMESTRA ANCEPS*, Hüb., *INFESTA*, Tr.

BY CHAS. G. BARRETT, F.E.S.

When conversing with my friend Mr. John Gardner at Hartlepool some months ago, he called my attention to the absence, in the late Mr. W. Buckler's great work on the larvæ of British Butterflies and Moths, of any figure of, or reference to, the larva of *Mamestra anceps*, Hüb., an omission the more remarkable since the insect is tolerably common in many parts of England, both inland and on the coast, and in some districts abundant. Mr. Gardner, thinking it desirable that such small amount of knowledge as Mr. Buckler seems to have possessed of this larva should be placed on record, searched for and subsequently sent me a letter to himself from Mr. Buckler on the subject, with permission to make it public. Mr. Buckler says:—"I have reason to know that it is rather tapering at each end. It cannot be very much unlike that of *Apamea basilinea* I am disposed to think, from the circumstance of the Parish Clerk having picked up, in a field, a larva, some years ago, which he took to the Rev. H.

Harper Crewe, who from it bred a specimen of *M. anceps*. The following year both he and his clerk looked for and found what they thought was another larva of the same species, but I bred only *basilinea* from it. Subsequent researches by them again brought me only *basilinea*.

"Now, I must tell you that since then, though many years ago, Mr. Robson, of Hartlepool, sent me several larvæ, which he said were *anceps*, reared from the egg on garden lettuce. They were about three-fourths of an inch long when they came to me, and eventually grew to be an inch and half long on the same sort of food, which ever since I repented giving them, for it relaxed them too much and several died; one only going to earth in November, but no moth ever resulted from it. Therefore, without this proof of identity I was not sure what species it was I had figured—for I took, I think, two figures—and certainly I have never in all the years that have since passed seen a similar larva. There was, however, as I noticed at the time I was drawing its figure, something that reminded me of *Hadena dentina*, and this, if I remember right, consisted of black dashes just along the upper edge of the paler but obscure subdorsal line, though in other respects it was different from *dentina*, besides its greater size. Ever since, the figure or figures have remained among the unknown; but I must hunt it up and refresh my memory. Probably the larva feeds on grasses, as we know that of *basilinea* does."

"WM. BUCKLER."

"Emsworth: October 7th, 1882."

I think that there is no doubt of the accuracy of these observations, and that these figures, which are doubtless still extant, do represent the larva of *Mamestra anceps*.

The only description of the larva of this species upon which I can lay my hand is that reproduced by Hoffmann under the name *sordida*, Bkh., *infesta*, Tr.

"Larva pale brown, with an obscure darker dorsal stripe and two similar side stripes on each side of it; four black spots on each segment; under the side stripes on each segment, at the back, a more oblique darker streak; head, dorsal plate, and anal flap black-brown. Lives in March and April on grasses, concealed in the day time, and undergoing its transformation to a pupa in the earth; emerging in July and August" (Bkh., 4, 578).

The time of emergence here stated seems rather late, but in other respects the description seems tolerably suitable to the larvæ partially reared by Mr. Buckler. But there appears to be no sufficient reason why the larva of so familiar a species should not be clearly made known and fully described in this country.

39, Linden Grove, Nunhead, S.E. :
October 14th, 1895.

TERAS CONTAMINANA: AN UNEXPECTED APRICOT-PEST.

BY CHAS. G. BARRETT, F.E.S.

In the latter part of last May I received from the Rev. H. S. Gorham, of Shirley Warren, Southampton, a partially grown apricot fruit of about an inch diameter, into which a deep hole had been eaten by a *Tortrix* larva, also sent, with a similar larva found feeding on the apricot leaves. Mr. Gorham explained that he had received them from a gardener, who had discovered the mischief in progress among his apricots, and was anxious to identify his enemy. I noted a description of these larvæ—though they looked familiar—they were quite alike, and I fully subscribed to an opinion put forward by Mr. Gorham that they would produce nothing more unusual than *Tortrix ribeana*.

"Larvæ active and lively; bright pea-green, slightly paler at the sides, and with the wrinkled lateral fold rather pale; incisions of segments also very narrowly paler; dorsal vessel deeper green; dorsal line very slender, but expanding toward the hinder end; spots shining, but not otherwise distinguishable, with single rather long hairs; head dull chestnut-brown, labrum whitish, jaws blackish; dorsal plate light brown, tinged with green; anal plate of the bright green ground-colour; legs black; prolegs green."

Both larvæ seemed equally to relish the unripe apricot while it remained fresh, and both very soon spun exceedingly tight cocoons, and therein assumed the pupa state. But, much to my surprise, July and August passed without the production of the perfect insects, and also a part of September, and then appeared two *Teras contaminana*. This, I confess, was a surprise. *Teras contaminana*, as a larva, is most familiar on leaves of hawthorn, blackthorn, and all manner of fruit trees, but never in my experience feeding on the fruit; and always of a more yellow-green colour, and flatter shape, so that very little resemblance appeared in the present larvæ, and I can only suppose that the more succulent food to which they had taken rendered them more plump and of a brighter green. Possibly the heat of the weather caused some dryness in the apricot leaves, and induced the larvæ to penetrate the more juicy fruit, but this is not, I feel sure, a confirmed habit, and there is reason to hope that the gardeners are not subjected to the attacks of a new *permanent* pest. Pupæ sent from the same trees to Mr. Gorham produced *Tortrix pyrastrana* (*Podana*), but there seems to be no evidence that these had fed as larvæ on the fruit.

39, Linden Grove, Nunhead, S.E. :

October, 1895.

Further captures of Lepidoptera at Enniskillen, Ireland.—Since my last notice (cf. ante p. 24) I have met with the following species in the Enniskillen district:—*Ptilodontis palpina*, a few from dug pupæ. *Ouraapteryx sambucata*, never seen in imago state, bred from larvæ on ivy. *Phigalia pilosaria*, bred from dug pupæ. *Hibernia rupicaprararia*, *aurantiaria* and *defoliaria*, and *Cheimatobia brumata*, plentiful in larval state; bred. *Eupithecia togata*, one only, taken a considerable distance from firs; *pumilata*, bred from dug pupæ. *Cymatophora or* and *duplaris*, scarce. *Noctua brunnea*, very plentiful at sugar. *Tæniocampa opima*, only a few at willows; *populeti*, recorded in previous list as possible, now bred and verified; *cruda*, bred from dug pupæ. *Cerastis spadicea*, bred from dug pupæ. *Euplexia lucipara*, at sugar, never seen in two previous years. *Panolis piniperda*, very scarce, at willows. *Scoparia angustea*. *Amphysa prodromana*, bred from sweet gale. *Phloxodes immundana*, very scarce. *Ephippiphora ephippiana*. *Aplecta herbida*, plentiful at sugar.—C. E. PARTIDGE: October 10th, 1895.

Xanthia ocellaris and *Xylina Zinckenii* in Suffolk.—On September 7th, I took one specimen at sugar, and on the 17th a second at light, of *Xanthia ocellaris*. Referring to Mr. Barrett's note on this species in the Ent. Mo. Mag. for April last, I find that these specimens closely approach his description of a continental variety of *X. ocellaris* at South Kensington. Not being familiar with the typical *ocellaris*, I cannot judge of comparative richness of colouring in the varieties; but my specimens are without the dusky bands of *X. gilvago*, and the hind-wings are paler; the lines are as in *X. gilvago*, but the row of darkish spots before the subterminal line is more distinct, that is, there are four very distinct ones in the central part of the wing, the continuation being made by curved lines, one reaching the apex, and the other the anal angle. The apex is more pointed than in *X. gilvago*, and the renal stigma has a distinct white dot without the dark grey in the lower part. The band between the inner and the subterminal lines, though paler in colour, somewhat resembles the similarly placed band in *Anchocelis rufina*, being of equal colouring throughout, and only interrupted by the white nervures, which are conspicuous in these specimens, and absent in *X. gilvago*.

On September 30th I was fortunate enough to take a very perfect specimen of *Xylina Zinckenii* here in my own grounds, where also I took the specimens described above. I took the moth off sugar on the trunk of an oak at 6.45 p.m., there being a bright moon at the time, only three days from the full, and an east wind. A rare capture under all circumstances. I have worked at sugar regularly since, but cannot get another specimen.—JOHN H. HOOKING, Copdock Rectory, Ipswich: November, 1895.

Nephopteryx angustella bred, &c.—I have much pleasure in recording the breeding of a few of this apparently long-lost species: I can find no record of it since 1879, when a few were bred by Mr. Porritt (Ent. Mo. Mag., xvi, 65). From a very few larvæ taken in West Surrey feeding in the fruit of the common spindle-tree (*Euonymus europæus*), in October, 1894, I bred a pair early last June. At the end of the past summer I succeeded in finding some thirty or more larvæ, and in September bred a short series; the rest are now lying over till next season. I had never seen any *fresh* specimens before, and was rather surprised to see what a pretty species it was, but I fancy the pink tinge on the upper wings will not be permanent.

Dichrorampha alpestrana, H.-S.—I have taken a few specimens of this (apparently) very local species in its old locality, Epping Forest, principally at rest on or in the immediate neighbourhood of its food-plant, *Achillea ptarmica*.—A. THURNALL, Stratford, E.: November 4th, 1895.

Hybrids between ♂ Ennomos alniaria and ♀ E. angularia.—These hybrids have been recently bred by Messrs. J. and W. Davis, of Dartford. No premeditated attempt to pair the parents was made. A ♀ *angularia*, which emerged from pupa unusually late in the season, paired with a ♂ *alniaria*, which happened to be in the same breeding cage; and the progeny partake of the characters of both parents (which unfortunately have not been preserved). They are intermediate in size. The more pointed fore-wings and the mottled appearance of them (especially in the ♀s), show the admixture of *alniaria*, whilst the distinct lines on the fore-wings, the inner one angulated, and the pronounced tooth-like projection midway in the outline of the hind-wings, show their affinity to *angularia*. Some of the males are of a rich orange hue. The hybrids have been paired, but, as might have been anticipated, the ova have proved infertile.—A. B. FARN, Mount Nod, Greenhithe: Nov. 14th, 1895.

Sphinx convolvuli in the larva state in Dorset.—*S. convolvuli* seems to have been rather common in this neighbourhood lately, as three specimens of the moth have been brought to me in a more or less damaged state by children, and also two larvæ, one of which reached me on October 5th, and is still above ground, though apparently full-fed, or very nearly so; the other a few days more advanced, went down about October 3rd. Both were found by people digging potatoes in the allotment gardens, where *Convolvulus arvensis* is a common weed, and this plant continues to furnish the food of the second larva. The extreme rarity of the occurrence of the larva in this country makes the captures interesting, and it is also curious to note that the locality suggested in Buckler's Larvæ, vol. ii, p. 24 viz., "Potato fields in soils which *Convolvulus arvensis* affects," exactly coincides with the present one, though the connection of the potatoes is not necessary, as the weed is by no means limited to potato ground. The first larva was very like fig. 2b of the plate in Buckler's Larvæ, the second a little lighter in colour; the latter went down yesterday, October 15th. It is perhaps worth recording that I have not seen or had brought to me as usual any larvæ of *S. ligustri* this year.—N. M. RICHARDSON, Weymouth: October 16th, 1895.

Didea fasciata, Mcq.—I am glad to be able to record the capture of this rarity last season. I boxed a ♀ from an *Umbellifer* at Holmwood, Surrey, on June 5th, which was kindly identified for me by Mr. Austen. This is apparently the fourth British specimen. I may also record *Syrphus tricinctus*, a ♀ of which was taken at the same time and place at flowers of *Veronica chamædrys*.

I met with a single ♂ of *Merodon equestris* on the Lea Marshes near here in August, and there is another in the new British Collection of *Diptera* at the Natural History Museum from Hampstead Heath, so this pretty *Syrphid* may now be considered a Metropolitan insect. In this connection also the capture of *Chilosia*

grossa from willows at Edmonton, in April, is interesting.—F. B. JENNINGS, Meadow Cottage, Tanner's End, Upper Edmonton, N. : November 4th, 1895.

[Growers of *Narcissi*, &c., in the London district know to their cost that *M. equestris* has been abundant for years in their gardens.—EDS.]

Insects bred from a dead branch of maple at Blackheath.—In the early part of this year I secured a large portion of a dead branch of a maple tree which was much riddled with insect borings, and thinking it would be interesting to ascertain what species of insects it would produce, I tied it up in a large muslin bag and waited for the warm weather to tempt its inmates out. These began to appear at the end of April, and came out pretty freely after a time, when thinking the branch lacked moisture I gave it a bath, which process I fear was too much for its tenants, as there were no emergencies afterwards. Amongst the species Mr. Saunders says is one specially worthy of notice, viz., *Pemphredon (Ceratophorus) morio*, of which five examples occurred; this is one of our rarest Aculeate Hymenoptera, and has not been recorded (as far as Mr. Saunders knows) from this country for thirty years or more.

The following is the list of species observed:—COLEOPTERA—*Ptilinus pectinicornis*, *Anaspis subtestacea* and *rusticollis*, *Anthrenus pimpinella*, *Megatoma undata* (1), *Tiresias serra* (2), *Omalium vile*; HYMENOPTERA—*Passalacus corniger*, *Pemphredon lugubris*, *P. (Ceratophorus) morio*, *Crabro cephalotes* (I should think as many as fifty), *Prosopis communis*, *Homalus auratus*, *Aphidius avenæ*, *Perithous varius*; DIPTERA—*Spilogaster duplicata*, *Lonchæa vaginalis* (in abundance).—ALFRED BEAUMONT, The Red Cottage, Blackheath: October, 1895.

Aculeate Hymenoptera in Ireland.—The following captures are probably worthy of record, as most of the species mentioned have not been previously reported from Ireland, and the others have only been taken very sparingly, but the Order has not hitherto received much attention in this country, and some species which are probably not very uncommon here have, until lately, escaped observation. This is the case with *Vespa austriaca*, *Calirozys elongata*, and others, which before last year were regarded as rare species. *C. elongata* I have not thought worth noticing, especially as this season and last I have found it very generally distributed, and the ♀ not uncommon. I have, however, only taken one ♂.

My notes refer to the eastern and some of the central counties only, and I believe if the country were more thoroughly worked, many species now unknown from Ireland would be found.

Pompilus rufipes—I took a ♂ and two ♀ at Courtown, Co. Wexford, in August, 1894; this year I have looked for them in the same place in vain; I believe they are the only Irish specimens. *Ammophila hirsuta*—I took ♂ and ♀ about two miles north of Arklow, Co. Wicklow, on July 12th last; I believe this is the only Irish record. *Pemphredon Shuckardi*—The only Irish specimen I know of I took at Dundrum, Co. Dublin, on June 5th last; it is probably not uncommon. *Nysson spinosus*—I took four ♂ at Glencullen, Co. Dublin, last June; I know of no others, but it is probably not very uncommon. *Crabro clavipes*—I took one at Dundrum, Co. Dublin, on June 13th last; the only other specimen I know of is in the Irish

National Museum, taken by Haliday long ago. *C. dimidiatus*—Very dark variety; I took several near "The Scalp," Co. Dublin, on June 5th last. *C. quadri-maculatus*—Very dark variety, some nearly entirely black; I took some at Courtown, Co. Wexford, on July 1st last. *Vespa austriaca*—The females have occasionally been taken in Co. Dublin and Wicklow, and this year I found them not very uncommon near Dublin. *Colletes picistigma*—Abundant at Courtown, Co. Wexford, both this year and last. *Prosopis confusa*—I took one near Gorey, Co. Wexford, on July 9th last, and one taken by Haliday is in the Irish National Museum (as *punctatissima*). *Sphcodes similis*—I took a ♂ at Courtown, Co. Wexford, on July 16th last, and a ♀ at Glencullen, Co. Dublin, on June 5th last; these are the only Irish records I know of, though the species is probably not uncommon here. *S. variegatus*—I took it at Sandycroft and at Glencullen, both in Co. Dublin, in June last; I know of no other Irish record, but the species is probably not uncommon. *Halictus leucopus*—One I took at Dundrum, Co. Dublin, on June 18th last is the only Irish record. *Nomada flavoguttata*—This species seems not to be common in Ireland; I took one this year at Glencullen, Co. Dublin. *Psithyrus rupestris*—I took a ♀ this year at Courtown, Co. Wexford, and I know of two others taken in Co. Limerick and Cork. *P. vestalis*—The commonest species of the genus here; I took the first Irish specimens at Dundrum, Co. Dublin, on May 2nd last, since then I have taken several in Co. Dublin and Wexford, and it has occurred in Co. Cork. *P. Barbutellus*—The only Irish specimen I know of yet I took at Dundrum, Co. Dublin, May 29th last. *Bombus Latreillellus*, var. *distinguendus*—I know of no Irish specimens but those I took this year near Courtown and Gorey, Co. Wexford, and Arklow, Co. Wicklow where I found it not very uncommon. *B. Scrimshiranus*—The only Irish specimens I know of I took last April near Carrickmines, Co. Dublin.—PERCY C. FREEKE, 9, Sydenham Road, Dundrum, Ireland: October 1st, 1895.

Pogonus luridipennis, &c., at Sheerness.—On September 25th I took a few specimens of *Pogonus luridipennis*—well known as a Sheppey insect in old times, but one for which I have searched in vain ever since I have paid any attention to *Coleoptera*—under tidal refuse at the edge of a once productive but now sadly reduced piece of salt marsh, at the commencement of the Sheppey Cliffs. With it were plenty of *P. littoralis*, *Dichirotrichus obsoletus*, *Bembidium ephippium*, *Tachys scutellaris*, &c., one or two of which species I had not seen alive for a good many years.—JAMES J. WALKER, H.M.S. "Northampton," Portsmouth: October, 1895.

Gnathoconus picipes, Fall., at Great Yarmouth.—I found this neat little Hemipteron in some numbers on September 28th at the roots of a species of violet (probably *Viola canina*) in a very restricted space on the "North Dunes" at Great Yarmouth. It was accompanied (commonly) by *Orobatis cyaneus*,* surely an unusual habitat for this wood-frequenting weevil. *Odontoscelis fuliginosa* and *Chorosoma Schillingi* also occurred on the North Dunes.—ID.

Harpalus obscurus, F., at Swaffham Prior.—At the end of June Dr. Sharp and I went to look for *H. obscurus* at the Devil's Dyke, near Swaffham Prior; we found

* Bedel, Faune Col. Bassin de la Seine, vi, p. 350, states that the larva of *Orobatis* lives in the capsules of *Viola canina* and *V. palustris*.—G. C. C.

it in the locality in which we took it in some numbers three years ago, but it was very scarce, owing apparently to the drought, in fact, there was very little else to be found of any worth, as far as beetles were concerned; a single *Miarus graminis*, a small *Scopaeus*, and several *Telephorus fuscicornis*, with two or three *Harpalus sabulicola*, being the only things worth mentioning. Dr. Sharp has taken *H. obscurus* on flowers at Wicken Fen, and one or two other localities near Cambridge, as well as on the Devil's Dyke; the only *Harpalus* I have ever found in such a situation is *H. puncticollis*.—W. W. FOWLER, Lincoln: October 14th, 1895.

Harpalus ruficornis injurious to strawberries.—Miss Ormerod kindly sent me in July specimens of this beetle, and a note to the effect that they had been found doing considerable damage to ripe strawberries. I do not know whether this has been observed before in the case of this or any other of the *Carabida*.—ID.

Alphitophagus quadripustulatus, Steph.—The name *quadripustulatus*, Steph., cannot be retained for this cosmopolitan insect, it having been described under the name *bifasciatus* by Say in 1823, this name antedating that of Stephens by nine years. Say doubtfully referred the species to the genus *Diaperis*. In the last edition (1891) of v. Heyden, Reitter, and Weise's European Catalogue, Stephens's name is correctly sunk as a synonym of *bifasciatus*, Say, but in Sharp and Fowler's British Catalogue (1893) the change is not made. This insect is, no doubt, of American origin, like *Gnathocerus*, *Echocerus*, and *Sitophagus*, all of which have been imported into Europe. *Latheticus*, *Tribolium*, *Tenebrio*, *Alphitobius*, and *Palorus* are almost certainly of eastern origin.—G. C. CHAMPION, Horsell, Woking: October 28th, 1895.

Reviews.

A HANDBOOK OF BRITISH LEPIDOPTERA: by EDWARD MEYRICK, B.A., F.Z.S., F.E.S. 1895. London and New York: Macmillan & Co. 8vo, pp. i—vi, and 1—843, figs.

Mr. Edward Meyrick's long promised Handbook of British *Lepidoptera* has now been published, the actual date being October 23rd, 1895.. It has not disappointed those who expected it to contain important amendments to the accepted system of classification, neither does it in any way fall short of our anticipations in changing the nomenclature so long in use among students and collectors.

That changes were necessary in both cases no one could rightly deny, nor can much fault be found with the author in regard to the extent to which he has carried them. This work marks a very notable advance in the study of the *Lepidoptera*, and the not unsatisfactory circumstance that in the main his conclusions are in sympathy with those of recent authors who have approached the subject of classification from different points of view, such as Comstock, Chapman, Dyar, Kellogg, and Hampson, must not be taken to impair its originality, nor to detract from the credit it deserves. The differences that are observable are more in the extent and sequence of the groups of families than in the order in which certain of these have been placed in the general series; the natural alliances are for the most

part regarded from the same point of view, although precedence in the series is differently accorded; *e. g.*, the *Sesiidae*, *Zygenidae*, *Psychidae*, *Cossidae*, *Hepialidae*, and *Limacodidae*, of Hampson, take a lower position in the scale, being placed beneath the *Pyratidae* of Hampson, whereas that author had given them considerable precedence.

With regard to the position of the *Rhopalocera*, other authors were anticipated by Zebrawski, who, in his Catalogue of the Lepidoptera of Cracow (Owady Luskoskrzydłe czyli Motylowate zokolic Krakowa, 1860), assigned to them an analogous position.

Eminently concise, and, with some small exceptions, clear and easy of comprehension, this book cannot fail to afford great assistance to the student who desires to recognise and identify his specimens without the necessity of comparing them with named examples. It is without exception the best class-book that has yet appeared for imparting real sound knowledge of structure, evolution, and classification, although neururation has been more particularly relied upon for the results arrived at. It is, perhaps, a matter of regret that the author should not have given some comparative table, showing to what genera and families in the old system his new divisions are equivalent, for only by careful study of the species included in them can those who are not conversant with the new names adopted form any idea of what these divisions really amount to, or what justification there may be for the order in which he has placed them.

The analytical tables which accompany the work throughout, together with the figures illustrating typical forms of neururation, are a decided improvement upon Stainton's Manual, and will greatly facilitate identification, although in the case of families the tabulation seems to lack precision on account of the numerous exceptions of which the author is so plainly conscious. Mr. Meyrick rightly claims that his system is derived from a study of the *Lepidoptera* of the world, and in this respect it possesses an importance far greater than could attach to such work if founded upon a knowledge of any limited or merely local fauna.

In regarding the *Hepialidae* in conjunction with the *Micropterygidae*, as the ancestral forms through which the *Lepidoptera* have been evolved from Trichopterous ancestry, Mr. Meyrick (following Comstock and Kellogg) appears to be fully justified by his study of the New Zealand genus *Palaeomiera*. His separation of the *Psychidae* into two groups commends itself to the fullest approval, nor can the altered position of the *Zygenidae* be seriously disputed, but we might be disposed to question the alliances assigned to *Cossus*, although the characteristics of its larva and pupa undoubtedly lend support to his views. So long ago as 1865 (Trans. Ent. Soc. [3 ser.], vol. V, p. 5) Mr. McLachlan suggested the affinity of *Micropteryx* with the *Trichoptera*.

The terminology recommended in the introduction is better than that in general use, as being at once more concise and more precise, but exception must be taken to the use of the term "patagia" where "tegulae" (which are probably equivalent to elytra) are indicated, the patagia being merely what Mr. Meyrick calls the "collar." Moreover, in his description of the veins, what he calls the "upper median" should surely be "subcostal" or "radius," and his "lower median" should be "median" or "cubitus," if he would consistently follow either Hampson with other Lepid-

opterists, or Comstock with the Neuropterists. The description of the larva is perhaps less satisfactory than that of the imago, it might have been more instructive if the head, prothorax, mesothorax and metathorax had been referred to as such, the remaining segments being called abdominal, thus emphasizing the homology with the perfect insect.

In his preface the author writes, "On disputed points I have simply stated my conclusions, based on the best available evidence, but without discussion." This seems to mean in regard to nomenclature that he is convinced by evidence in his own possession that the generic names adopted throughout the work are rightly applied to the species included under each. It will not be disputed that in nearly all instances he was justified in supplanting those now in common use, but it is to be regretted that no reasons are offered for these changes—students would have given him credit for an attempt at least to silver the pill they are asked to swallow, if he had only stated the grounds upon which he desires them to forget the names they have long known and to learn others that they knew not of; but surely it is somewhat hard that without proof of finality they should be called upon to accept the *ipse dixit* of any author, however erudite, and on the strength of this alone to enter upon such a process of learning and unlearning as this book involves. Mr. Meyrick has revived a number of Hübnerian names selected from the "Verzeichniss bekannter Schmetterlinge," a work published after the Tentamen and the Zuträge, which should therefore have been first consulted. No such selection made without a careful study of the limitations assigned by Stephens, in his Illustrations (Haust., vol. IV), to Hübner's genera can be regarded as satisfactory, moreover, Westwood's Synopsis of the Genera of British Insects, wherein Haworth's, Stephens' and Curtis' types were for the most part stereotyped, appears to have been equally ignored. A detailed examination of this portion of the subject must be deferred to a future article, but the following instances will illustrate the point. Mr. Meyrick proposes *Eucosma*, Hb., for the genus *Penthina* as used in Staudinger and Wocke's Catalogue, and *arcuella*, Cl., must be regarded as his type. *Eucosma* was not originally published in the Verzeichniss but in the Zuträge, where vol. II, p. 28 (1823) it will be found that the type is *circulana*, Hb., which is no *Penthina* but a North American *Padisca* possessing a costal fold. Hübner, in the Tentamen (1806) created the genus *Olethreutes* for *arcuella*, and this name should be used as a substitute for *Eucosma*, Meyr. (nec Hb.). The type of the genus *Cheimatophila*, Stph., has always been *Teras mixtana*, Hb. Herrich-Schäffer erroneously transferred the name to *tortricella*, Hb., in which he has been followed by Mr. Meyrick and others, the oldest genus for *tortricella* is *Oporinia*, Hb., but as this is pre-occupied by Hübner himself the name used in Stainton's Manual, *Tortricodes*, Gn., must be restored. *Nemophora* is also wrongly used; this name was not originally proposed by Hübner, it must be accredited to Hoffmannsegg, who described it in Illiger's Verzeichniss der Käfer Preussens (1798), and the type is *Adela Degeerella*, L. The type of *Anacamptis*, Crt., was stated by Curtis himself to be *populella*, Cl.; this name should supplant *Tachyptilia*, Hein., and *Anacamptis* as used in this work, and in many others must be changed—such instances can be supplied *ad libitum*. The author unfortunately omits to mention what species he regards as the types of the genera he adopts; similar omissions have been the primary cause of that vast confusion in the use of generic names that has arisen during the last fifty years, and it is scarcely conceivable

that any one who has studied Hübner's work should have failed to recognise the importance of supplying the deficiency.

It must also be pointed out that where new generic names have been substituted for old ones pre-occupied, as in the case of *Scoliaula* for *Bohemannia*, "n. n." should have been used instead of "n. g.," and as an unnecessary addition to generic nomenclature, it may be mentioned that *Ischnoscia*, n. g., for *subtilella*, was anticipated by Millière, who, in 1874, created for it the genus *Guenea*, and whose specific name *borreonella* also precedes *subtilella* Fuchs. *Tortrix bifasciana*, Hb., will repay further study, and should be retained as the type of *Chrosis*, Gn. (*nec* Meyr.). In spite of these criticisms, the generic divisions which the author has marked out are distinctly well-founded, the selection of names being the only point in which we are seriously at issue with the author. In any case the book can be safely and strongly recommended as the best and most instructive work dealing with the increasingly popular study of the *Lepidoptera* that has appeared up to the present time, and affords additional proof of that unflagging industry and high ability which practically created the catalogue of the *Micro-Lepidoptera* of Australia and New Zealand.—WALSINGHAM.

THE BOOK OF BRITISH HAWK MOTHS: by W. J. LUCAS, B.A. Pp. 156, 12mo. London: L. Upcott Gill. 1895.

This is a handy little book, excellently printed on good paper, and with capital illustrations (nearly all original), each species, with one or two exceptions, having a plate devoted to itself. The text as a whole is reliable, the author having laid already existing publications largely under contribution, and in the case of the rarer species the list of occurrences and localities is fairly complete, though we note some conspicuous omissions.

FRAIL CHILDREN OF THE AIR; EXCURSIONS INTO THE WORLD OF BUTTERFLIES: by SAMUEL HUBBARD SCUDDER. Pp. 279, 12mo. Boston and New York: Houghton, Mifflin and Co. 1895.

The only bad feature about this instructive little volume is its primary title, which, from the cover only, led us to imagine its amiable author had taken to novel writing. It is a collection of papers selected for the general reader from the author's large and somewhat costly work on the Butterflies of the Eastern United States, amended to bring them down to date, and in some cases replying to criticisms and objections. There are nine chapters in all, on very varied subjects, each of which is full of information, and written in a charming style: we heartily commend the book to the notice of our readers.

THE BUTTERFLIES OF NORTH AMERICA: by W. H. EDWARDS. Third Series, Pt. XVI. 4to. Boston and New York: Houghton, Mifflin and Co. 1895.

This part is occupied by *Parnassius Smintheus* and its var. *Hermodur*, *Satyrus Charon* and its var. *silvestris*, and *Chionobas gigas* and an unnamed var., all worked out in the greatest possible detail, and the plates are, as usual, inimitable specimens of iconographic excellency. Twenty-seven years have elapsed since this magnificent work was commenced, and all along it has been a continuous tribute to the author's singleness of purpose.

Obituary.

Emile Louis Ragonot, F.E.S., Prés. Soc. Ent. de France, died at his residence in Paris on October 13th, aged 52. The announcement was received by his friends with equal surprise and regret. He came to England in early life, and when first heard of as an entomologist was in a monetary exchange office in Liverpool, and probably his first notice in print appeared in the No. of this Magazine for September, 1866. A few years later he returned to Paris (*cf. Ent. Mo. Mag.*, November, 1869), and entered a banking establishment, in which he subsequently became a partner, and at the time of his death the business was, we think, entirely in his hands. He devoted his attention especially to the *Micro-Lepidoptera*, and concentrated it on the *Phycitidæ*, of which he published a Revision of the British species in *Ent. Mo. Mag.*, vol. xxii (1885). His great work was a Monograph of all the known species of the Family, the first half of which formed vol. vii of the Romanoff Mémoires (St. Petersburg, 1893); let us hope the conclusion may yet appear posthumously! He also wrote very numerous papers on *Pyratidæ*, *Tortrices* and *Tineina*. He won the good feeling of all with whom he came in contact on account of his quiet unassuming manner, and those of his correspondents to whom he was not known personally, bear testimony to his constant readiness to impart information. He took an active part in the affairs of the Société Entomologique de France, of which he was President in 1885, and again this present year. In him the writer of this notice loses a personal friend, with whom he had long been in more or less constant correspondence, and in company with whom he spent several pleasant days collecting in what may be called the Paris District. M. Ragonot leaves a widow, one son and two daughters, to deplore his premature decease.—
R. McL.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *September 16th, 1895.*—Mr. G. T. BETHUNE-BAKER, President, in the Chair.

Mr. J. W. Smallwood, of 18, Pakenham Road, Edgbaston, was elected a Member of the Society.

Mr. R. C. Bradley showed a specimen of the pale green form of *Didea alneti* from Sutton; and one of *Echinomyia grossa* from Sutton also, the species not having been observed in the Midlands before. Mr. P. W. Abbott showed *Lithosia griseola*, and var. *flava*, from Norfolk, and *Hepialus humuli*, var. *hethlandica*, from the Shetlands. Mr. Valentine Smith showed beetles from Branton Burrows; viz., *Nebria complanata*, a nice series, *Phaleria cadaverina*, and *Psammobius sulcicollis*. Mr. Wainwright showed a single specimen of *Colias Edusa* taken at Lynton in August; also *Macroglossa stellatarum* from the same place.

October 21st, 1895.—The President in the Chair.

Mr. A. H. Martineau showed a specimen of *Didea* from Nevin, North Wales, differing in the bands from any specimen of *Didea* possessed by Mr. R. C. Bradley, and which he had referred doubtfully to *D. fasciata*; also one dark specimen of

Xylophasia monoglypha from Solihull; also a *Chelififer* which he had found clinging to a leg of an *Anthomyia* caught in his house at Solihull, when separated and put into a test tube the *Chelififer* had made several attempts to secure a hold on the fly again whenever the fly approached it: he also showed and read notes upon some abnormally early developed *Andrena Clarkella* and *Nomada borealis*; he had long dug these up at Solihull fully developed as early as October 6th, and although he searched hard he could not find any larvæ left at all, although usually the *Andrenæ* remain undeveloped until a much later date, the earliest previous recorded dates for perfect insects being December 28th, when Mr. R. C. Bradley in 1893 got two *A. fulva* (♀) and one *A. cinerea* (♂) with larvæ in Sutton Park, and December 30th, when Mr. F. Enock dug up *A. nigroænea* in 1884. The earliest date on which Mr. Martineau has seen *A. Clarkella* on the wing in the spring is March 18th, and it is the earliest *Andrena*. Mr. W. Harrison showed *Lycæna Icarus* from Hamilton, near Bridge-north, the females being bluish; *Trypeta cardui* bred from galls found on old thistle, also at Hampton; and other insects. Mr. R. C. Bradley, *Plusia festuæ* from Barmouth; also, for Mr. R. W. Fitzgerald, a very remarkable Geometer taken at Dursley, Gloucestershire. Mr. Barrett had referred it, after considerable hesitation, to *Thera firmata*, but added that it was so aberrant it might do equally well for *Lobophora polycommata*. Mr. Bethune-Baker thought it was wrongly referred to the genus *Thera*, and expressed a wish for Mr. Barrett to see it again. Mr. G. W. Wynn, *Agrotis obelisca* from Sutton; one *Xylina petrificata* from Wyre Forest, an insect quite new to the district; and a pretty variety of *Agrotis obelisca* from Lapworth. Mr. P. W. Abbott, *Sesia scoliaformis* from Scotland and Llangollen; also *Pachetra leucophæa*, several specimens taken this year in the old locality in Kent.—COLBEAN J. WAINWRIGHT, *Hon. Secretary*.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY:
October 24th, 1895.—T. W. HALL, Esq., F.E.S., President, in the Chair.

Colonel Partridge was elected a Member.

Mr. Frohawk exhibited two specimens of *Acherontia Atropos*, L., one of which had been washed ashore in Glamorgan and the other taken at the lighthouse of St. Agnes, Scilly. It was remarked that the species had occurred singly in many places this autumn. Mr. Oldham, series of *Mamestra brassicæ*, L., from Wisbech and Woodford, those from the latter place being darker; two *Cosmia paleacea*, Esp., from Lancashire; *Xylina semibrunnea*, Haw., and several other species from Folkestone. Mr. McArthur, a series of *Noctua festiva*, Hb., var. *confusa*, Tr., and specimens of *Agrotis vestigialis*, Hufn., *A. cursoria*, Bork., and *A. tritici*, L., all from the Orkneys this year. Mr. Hy. J. Turner, series of *Agrotis obelisca*, Hb., and *Aporophylla australis*, Bdv., from Freshwater, and stated that the former had been very common there this year. Mr. R. Adkin, two series of *Himera pennaria*, L., from the New Forest and Abbot's Wood respectively, and contributed notes. Mr. Thornhill communicated a series of observations upon a brood of *Arctia Caja*, L., analysing the smaller variations shown. Mr. West, a bug, *Zicrona carulea*, L., taken by Mr. Billups on the Fungus table at the Exhibition at St. Martin's Hall.

Mr. Carrington and Mr. Frohawk reported having seen fresh specimens of *Colias Edusa*, Fb., on the S. coast on October 20th. Mr. Turner laid on the table a full Report of the Annual Exhibition, which will doubtless be printed in the yearly Abstract of Proceedings.—HY. J. TURNER, *Hon. Secretary*.

THE ANNUAL EXHIBITION OF THIS SOCIETY was held on OCTOBER 17TH, at ST. MARTIN'S TOWN HALL, CHARING CROSS, and was much appreciated.

In the British section the President, T. W. Hall, Esq., F.E.S., exhibited a large and valuable collection of Butterflies and Moths, including a long series of *Chrysophanus dispar*, a series of the rare *Lycana Arion*, a fine series of *Noctua subrosea*, a fine set of "Pugs" and the life history of *Sesia sphegiformis*. Mr. R. South, F.E.S., life histories of a number of species. Mr. Hamm, a large number of rare varieties taken round Reading, including *Melitæa Aurinia*, *Lithosia lurideola*, *Xanthia aurago*, many specimens of both *Psyche opacella* and *Fumea intermediella*, with cases at different stages of growth. Mr. Jager, his extremely perfect series of *Callimorpha Hera* with its var. *lutescens* and the intermediate terracotta form, and also his beautiful series of *Spilosoma lubricepeda*, with vars. *radiata* and *fasciata* and intermediate forms. Mr. H. W. Barker, F.E.S., a fine series of *Arctia*, and a drawer of several species of *Lycanida* showing many beautiful variations. Mr. A. Mitchell, a case containing distinct and striking varieties of 14 species, including *Epinephele Janira*, *Vanessa urtica*, *Papilio Machaon*, *Polyommatus Phlaeas* and *Zygana lonicera*. Mr. C. H. Williams, a beautiful form of *Cheimatobia boreata*, a melanic form of *Oporabia dilutata* and a specimen of the same species with yellow ground colour. Mr. J. H. Carpenter, his collection of *Argynnis*, *Melitæa* and *Vanessa*, including white spotted forms of *Argynnis Paphia* and a male of the *Valezina* form. Mr. Hy. Tunaley, F.E.S., a case showing the protective resemblance of *Lobophora virescens* to its resting places. Mr. Hy. J. Turner, F.E.S., some 74 species taken in his garden near Nunhead Station. Mr. McArthur, some fine specimens of *Rhopalocera*. Mr. H. A. Auld, his bred series of *Callimorpha Hera*, a fine series of *Nola albulalis*, and a var. of *Lomaspilis marginata*. Mr. J. A. Clark, F.E.S., a series of *Lalia canosa*, and vars. of *Bombyx rubi*, *Abraxas grossulariata*, *Oporabia dilutata*, *Larentia cæsiata*, *Lomaspilis marginata*, and an instrument invented by himself, consisting of a lens on an adjustable arm and stand, to aid in the setting of minute insects. Mr. C. G. Barrett, F.E.S., his long and varied series of *Zygenida*, *Nolida*, *Psychida*, *Amphydasida*, *Boarmiida* and *Xanthia*. Mr. Merrifield, a number of species which had undergone changes brought about by increasing or decreasing artificially the temperature during the pupal stage. Mr. R. Adkin, F.E.S., a fine box of species taken in the island of Hoy, Orkney, during 1895, his almost complete collection of *Sesiida*, and his series of the genus *Triphæna*. Mr. J. W. Tutt, F.E.S., a number of drawers of species from his large collection. Mr. Chittenden, some very fine varieties of the *Noctua*. Mr. Percy Bright, F.E.S., a variable series of *Hepialus humuli* from N. Britain. In foreign *Lepidoptera*, Mr. A. H. Jones, F.E.S., exhibited some very fine bred series of *Rhopalocera* from S. Europe, including *Thais cerisyi*, *T. Polyxena* and its var. *Cassandra*, *T. rumina* and its var. *medesicaste*, *Euchloe Belia* and its var. *Ausonia*, *E. tagis* and its var. *bellezina*, and a very fine series of *Leucophasia Duponcheli*, with its summer form, var. *astiva*. Mr. McArthur, a case

of E. Indian *Papilios*. Mr. Hy. J. Turner, F.E.S., African *Papilios* and *Danainæ*. Mr. J. H. Leech, F.L.S., a large and fine collection of *Rhopalocera*, especially the *Argynnidæ* from all parts of the Palearctic Region. Mr. W. A. Pearce, about 150 species of *Sphinges*, *Bombyces*, *Noctuæ* and *Geometers* captured by himself in Pennsylvania and Colorado. Mr. W. Mansbridge, many fine *Rhopalocera* from the United States. Mr. A. Hall, grand cases of Palearctic and Nearctic *Argynnidæ*, S. American *Catagramminæ* and Oriental *Nymphalidæ*. Mr. Stanley Edwards, F.L.S., his very large and valuable collection of *Ornithoptera* and *Papilios* from all parts of the world. Among the *Coleoptera* shown, Mr. W. West (Greenwich) sent almost complete series of *Cicindelidæ*, *Carabidæ* and *Dytiscidæ*, as well as very fine specimens of *Chrysomela* and *Aphodius*. Mr. B. G. Rye, F.E.S., cases containing representatives of the families and genera of British *Coleoptera*. Mr. O. Janson, F.E.S., a case of the largest species of *Coleoptera* from various parts of the world. Mr. T. R. Billups, F.E.S., exhibited his collection of Ants, Bees and Wasps, a fine set of British *Hemiptera* and a large number of life histories of the parasitical *Diptera* and *Hymenoptera*, with their Lepidopterous hosts. Mr. A. Beaumont, a case of rare *Diptera*. Mr. J. T. Carrington, a number of plants having insect galls upon them. Mr. Auld, a Hornet's nest. Mr. Stanley Edwards kindly lent his series of diagrams showing the life-history of typical species of the various sections of the *Insecta* and *Crustacea*. In the *Orthoptera*, &c., Mr. C. A. Briggs, F.E.S., exhibited a collection of the British species, nearly complete, and living specimens of the recently naturalized Cockroach, *Periplaneta americana*. Mr. W. J. Lucas, specimens of *Æchna juncea* and *Æ. cyanea*, taken in cop. at Bournemouth. Mr. Ashdown, local species and varieties of *Odonata*, including *Gomphus vulgatissimus* and an intermediate var. of *Calopteryx Virgo*. Mr. R. Adkin showed entomological works, and Mr. A. E. Pearce a book of designs in water-colours, being studies of plants by himself. Mr. Enock gave one of his attractive lectures, aided by the lantern, on "Insect Architects," and the musical arrangements were admirably carried out by Mr. W. Latter, R.A.M., and a few friends.

ENTOMOLOGICAL SOCIETY OF LONDON: October 16th, 1895.—Prof. RAPHAEL MELDOLA, F.R.S., President, in the Chair.

Sir Gilbert T. Carter, K.C.M.G., of Government House, Lagos, West Africa; and Mr. Sidney Wachter, F.R.C.S., of Dane John, Canterbury; were elected Fellows of the Society.

The President announced the deaths of Prof. C. C. Babington, the last but one of the original Members of the Society, and Prof. C. V. Riley, one of the ten Honorary Fellows of the Society, and commented upon their scientific work. Mr. W. F. H. Blandford spoke at some length on the valuable services rendered by the late Prof. Riley to the cause of economic Entomology, and referred to the enormous number of papers and memoirs on the subject which he had contributed. Lord Walsingham also spoke as to the importance of the late Prof. Riley's work, and the respect and regard which he had for his estimable personal qualities. Mr. F. C. Adams exhibited a series of nineteen *Merodon equestris*, containing several varieties, showing their resemblance to wild bees of the family *Apidæ*, and made a few

remarks on mimicry. He also exhibited specimens of *Leptomorphus Walkeri*, taken in the New Forest in September last, and *Melanostoma hyalinatum*, Flin. (male and female), from a series of eighteen also taken in the New Forest in the latter part of August last. Mr. Adams further exhibited a specimen of *Spilomyia speciosa*, Rossi, from the New Forest. Mr. Verrall, Dr. Sharp, and Colonel Yerbury made some remarks on these species and their distribution. Mr. Enock exhibited, and made remarks on, specimens of the mature male and female, and the nest of *Atypus piceus*, the British Trap-door Spider; also male and female specimens of *Andrena atriceps* and males of *A. fulva*. Mr. Tutt exhibited a long series of 143 males and 25 females of *Erebia Nerine*, captured in the Tyrol, partly in the Mendel Pass and partly in the Val d'Ampezza, and read notes on the species, in which he criticised the description of it, and the published observations as to its habits, by Dr. Lang, Mr. Elwes, and others. Mr. Elwes made some remarks in reply. Lord Walsingham exhibited the type and para-types of *Pseudodoria limulus*, Rghfr., together with the larval cases and a preserved larva. His Lordship directed attention to the curious truncate concave head of the larva which forms an operculum to the tube, and remarked that the cases of this insect, which were apparently not uncommon in Ceylon, the larva feeding on mosses and lichens, had been known for some considerable time. So long ago as 1864 Mr. McLachlan found them in the British Museum collection of cases of Caddis worms, and at that time, being only acquainted with the case, he was disposed to consider them the work of one of the *Leptoceridæ*. In 1889 Herr Rogenhofer gave the name *Fumea ? limulus* to the case and its contents, and Mr. McLachlan agreed from the evidence then adduced that the insect was *Lepidopterous* rather than *Trichopterous*. Mr. C. J. Gahan exhibited, for Mr. Turner, an imago and some larval forms of *Ledra aurita*, Linn. Mr. G. C. Griffiths exhibited, and read notes on, hybrids between *Platysamia Cecropia* (male) and *P. Gloveri* (female), and between *P. Cecropia* (male) and *P. ceanotha* (female); also between *Actias Luna* (male) and *Selene* (female). He stated that these hybrids were bred by Miss Emily L. Morton of New Windsor, New York, in 1891, 1892 and 1893. Lord Walsingham stated that at the last Meeting of the Society some discussion ensued, after the reading of his paper, in consequence of his having stated that *Grapholitha*, W., was pre-occupied by *Grapholitha*, Hb. (Verz. Schm.), and he read a supplementary note on the subject explaining the references in his paper. Dr. A. G. Butler communicated a paper, entitled, "Notes on Seasonal Dimorphism in certain African Butterflies."—H. Goss, *Hon. Secretary*.

November 6th, 1895.—THE RIGHT HONORABLE LORD WALSINGHAM, LL.D., F.R.S., Vice-President, in the Chair.

Mr. Cecil W. Barker, of Malvern, Natal, South Africa; and Lieutenant H. G. R. Beavan, R.N., of the Royal Naval College, Greenwich, S.E.; were elected Fellows of the Society.

Lord Walsingham announced the death of Mons. E. L. Ragonot, President of the Entomological Society of France, and, since 1887, a Fellow of the Entomological Society of London. He remarked that Mons. Ragonot was especially distinguished by his knowledge of the *Phycidæ*, for his amiable personal qualities, and the readiness he showed to assist other workers in the identification of species. The

Council had that evening passed a resolution to the effect that the Secretary should write a letter of condolence to the French Entomological Society on the death of their distinguished President. Colonel Swinhoe also spoke as to the kindness and generosity of the deceased, which he had personally experienced. The Secretary read a letter from Mr. Waterhouse, calling attention to a prospectus of a Monograph by Mr. Ernest Green on the *Coccidæ* of Ceylon. A copy of the prospectus and specimen plates were shown, and Lord Walsingham and Mr. McLachlan commented on the importance of the proposed work and the beauty of the plates. Mr. Ernest Green, who was present, made some remarks in acknowledgment. Mr. Stevens exhibited two larvæ, supposed to be those of a species of *Anobium*, which had been damaging oil paintings in his possession; also two specimens of a luminous species of *Pyrophorus*, which he had received alive from the West Indies. Mr. Adkin exhibited a portion of a collection of *Lepidoptera* made in Hoy, Orkney, in 1895, including the following species, viz., *Agrotis vestigialis*, *A. tritici*, and *A. cursoria*, not previously recorded from Orkney; *Nemeophila plantaginis*, having the usual yellow ground-colour of the hind-wings replaced by red in many of the females; *Hepialus humuli*, males of the ordinary white form; *Triphæna comes*, all very dark; *Noctua festiva*, showing forms of variation ranging between the pale southern and the dark *conflua* forms; *Epunda lutulenta*, some almost uniformly black, others pale grey with dark markings; *Taniocampa gothica*, including var. *gothicina*; *Hadena adusta*, one almost black, others much variegated; *Thera juniperata*, having the central fascia and apical streak very dark brown; and *Hysipetes sordidata*, varying from blackish-brown to pale green. Mr. Barrett, Mr. McLachlan, and the Chairman made some remarks on the collection. Mr. Tutt exhibited a series of *Emydia cribrum*, var. *candida*, which he had bred from eggs obtained from a specimen caught by Mr. Merrifield in May, 1895, in Northern Italy. He stated that being unable to obtain *Calluna vulgaris*, the ordinary food-plant, he had tried the larvæ with Knot Grass (*Polygonum aviculare*), and had no difficulty in rearing them. The Rev. Canon Fowler exhibited, on behalf of Professor Poulton, living specimens of *Diapheromera femorata* bred from eggs received from Professor E. B. Titchener, of Cornell University, New York. He stated that the young larvæ had emerged from the eggs in July and August last and fed on lime. Several pairs had arrived at maturity and were feeding in cases in the Oxford Museum. The Rev. J. H. Hocking exhibited a specimen of *Xylina Zinckenii*, taken by him at sugar at Copdock, near Ipswich, on the 30th September last. He also exhibited two specimens of *Xanthia ocellaris* from the same locality. Mr. Barrett referred to the few recorded captures of *X. Zinckenii* in this country. Mr. R. W. Lloyd exhibited male and female of *Amara alpina* from Garvel, Perthshire. Colonel Swinhoe stated that he had, during the past summer, captured four specimens of *Pieris Daplidice* at Deal. He said they were worn and had probably been blown over from France. Mr. Tutt remarked that he had collected at Deal for many years but had never met with *Pieris Daplidice*. Mr. Tutt read a paper, communicated by Professor A. Radcliffe Grote, entitled, "Notes on the genus *Cidaria*." Dr. T. A. Chapman read a paper, entitled, "Notes on Pupæ; *Orneodes*, *Epermenia*, *Chrysocorys*, and *Pterophorus*." Lord Walsingham, Mr. Blandford, and Mr. Tutt took part in the discussion which ensued.—H. GOSS and W. W. FOWLER, *Hon. Secretaries*.

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LORD WALSHINGHAM, M.A., LL.D., F.R.S., &c.

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[VOL. XXXI.]
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"J'engage donc tous à éviter dans leurs écrits toute personnalité,
toute allusion dépassant les limites de la discussion la plus sincère et la
plus courtoise."—*Laboulbène*.

—◆—
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** The publication of several important papers, some already in type, is unavoidably postponed.

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